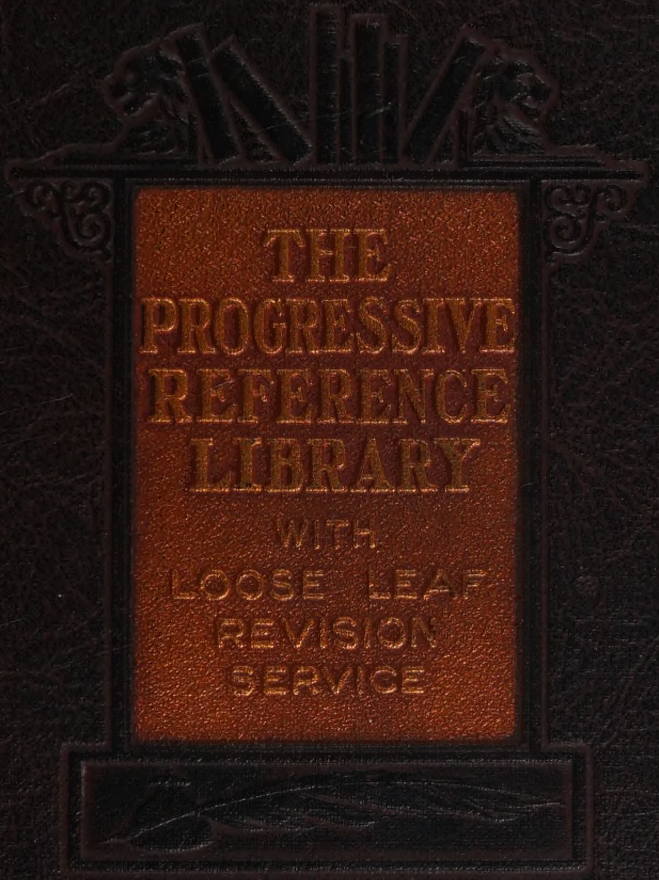

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Hol. Vol. 9

Practical Home and School Methods

of

Study and Instruction in the Fundamental Elements of Education with Outlines and Page References based on

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Under the Direction of

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Preface

METHOD is of vast importance in the acquisition of knowledge. It is the lubricant that serves to oil the mechanism of the brain. Properly employed, it converts knowledge into channels of wisdom and usefulness.

The possession of an accredited work of reference is a valuable holding, but it becomes of the greatest utility only when it is consulted in a methodical way. The present volume contains the guideposts that direct efforts along the line of rational study.

Those who have dedicated their lives to the work of the student and the teacher realize clearly the meaning of Rev. F. S. Browning's beautiful words:

> I do not know
> Where falls the seed that I have tried to sow
> With greatest care;
> But I shall know
> The meaning of each waiting hour below
> Sometime, somewhere!

—B. P. H.

Introduction

Principal Features.

ATTENTION is directed to the innumerable suggestive and helpful features of this work. It covers the field of education so completely that many prominent educators recommend it as an indispensable help to students and teachers. Hundreds of institutions of learning have placed it on their lists of useful books.

Orthography and Orthoepy.

Correct spelling and pronunciation are accomplishments of the finished scholar. Acquired as habits in the formative period, they give surety and independence to the man or woman in writing and speaking. This work uses the correct method, the system of diacritical marking, and defines and explains the difficult titles.

Language and Grammar.

Children should be taught to speak and write correctly. If properly trained in youth, they acquire the use of language from habit and become able to use it authoritatively. This work gives the exercises and outlines the lessons which are important. With the language lessons are correlated the more advanced work of grammar.

Agriculture.

All the departments of agriculture are treated in a helpful manner. The aim in this branch is to emphasize the importance of the farm in the economy of the nation. Formerly farming was empirical, but now the successful farmer is more especially fitted for the duties of his business. He studies not only to make his work profitable, but endeavors to beautify his home and enjoy the greater conveniences of a progressive age.

Literature.

This work abounds with facts that lead to a hearty appreciation of the best in literature. It contains not only a line of helpful information on the lives of the world's best writers, but furnishes materials for the actual scrutiny of their products. Many quotations from great authors embellish the pages and add interest in the study of useful subjects.

Biography.

Children gain much strength of character from studying the achievements of great men and women. They learn to emulate the noble deeds of great minds, whether in the field of science or statesmanship, and profit by the effort. This work stands foremost in the study and application of noted examples of human life and achievement.

Civics and History.

Instructors in the home and in school should keep in mind the future citizen—the men and women who will ultimately guide the ship of state safely on the sea of nations. This work of general reference treats of civil government so completely that all who follow the instruction obtain a clear understanding of the government, local as well as national.

The scope of work in history ranges from the most ancient to the present time, covering a period of more than six thousand years. It traces the causes and effects largely by sources, making the whole subject both clear and interesting.

Fine Arts.

The fine arts embrace the greatest achievements of man. Architecture, painting, sculpture, music, and engraving stand at the head of human attainments. They engage not only the ingenuity and stimulate the higher nature, but embody the accomplishments that really make life beautiful and ennobling.

This work furnishes the outlines and materials to study the fine arts. Students who follow the courses and consult the references, who devote their spare time to personal culture, acquire ability in conversing on these interesting topics.

Drawing.

The art of drawing is recognized as a very worthy subject of study. It enables the student to enforce statements by actual examples. This work contains a very complete treatise and many instructions in drawing, prepared by Miss Effie Schuneman, an accomplished teacher of the Pratt System of drawing. The mere mention of this system is sufficient to recommend this work to the student and teacher.

Letter Writing.

Correct form and usage in letter writing are as essential as correctness in speaking. Great letter writers, such as Jonathan Swift, Johann Goethe, and Madame de Staël-Holstein, became famous for their style of writing, as well as for the thoughts they committed to paper. This work presents a very complete set of forms and directions for conducting correspondence. Linked with the information given in the work, this department enables the student to be correct in the subjects of knowledge as well as in the style of committing them on paper.

Nature Study.

The systematic study of nature is made possible by consulting this work. It enables students to plan with the view of getting the best information which nature furnishes. Correlated with the topics of study, of which there are innumerable, will be found the choicest gems of literature to ennoble the mind. The fact that this work is consulted more frequently than any other, particularly in nature study, is proof conclusive that it is indispensable to the learner and the teacher.

Sciences.

All the natural sciences, including their branches and departments, are treated. Outlines in the most important of these branches are furnished in this work, such as those in Anthropology, Astronomy, Botany, Geology, Physics, Physiology, etc.

Other Subjects of Study.

To summarize the entire work, it may be said to contain all the leading subjects for conversation. It embodies the topics which are essential in a practical education and in the affairs of a successful business career.

Those who wish to be abreast of the times, equipped at any moment to demonstrate their power as students and thinkers, may consult this work with confidence of success. In politics and business, in folklore and mythology, in law and commerce, in fact, in all the general topics, it widens culture and disseminates knowledge.

The Attainment of Success

SUCCESS in any enterprise or industry is the product of labor. It must be sawed out of the forest, blasted out of the mine, plowed out of the field, achieved by close application in the institution of learning.

Alexander Hamilton, the eminent American statesman, said: "Men give me credit for genius; but all the genius I have lies in this: When I have a subject on hand I study it profoundly. The effect I make, they call the fruit of genius; it is, however, the fruit of labor and thought."

We need to prepare ourselves to endure physical toil as well as brain activity. This twofold culture, when closely associated with tact to apply it skillfully, is an ever-important factor. Indeed, labor, thought, and skill are the essentials of a successful career.

Nothing can hinder young men and women from obtaining success, if they are ablaze with determination. Those whose early training has been neglected may repair the defect by earnest study at home or in evening schools. If the time for this work is limited, that little should be improved. Napoleon once said, "The reason I beat the Austrian army is, they did not know the value of five minutes."

Success implies more than broad acres, large herds, and heavily laden granaries. It is closely linked with the kindnesses shown to others, the good accomplished in our community, and the help we bestow upon our fellows. Success means enterprise, thrift, skill, kindness, and self-denial.

It is the very nature of man to be athirst. This instinctive characteristic marks the soul as infinite. He may be athirst for work, love, art, achievement, or any other worthy object, but it is a thirst that cannot be quenched by any one or all of them. The desire is gratified only by the hope of future attainment.

Miss not the occasion; by the forelock take
    That subtile power, the never-halting time,
Lest a mere moment's putting off should make
    Mischance almost as heavy as a crime.

—*Wordsworth.*

The Spirit of Inquiry

THE immortal spirit of inquiry—the basis of every addition to knowledge—cannot die. It is as irresistible as the onward flow of the tides, or the movement of the stars.

The spirit of inquiry and investigation in all ages has dared to explore the wilds of untrodden lands. It has invaded the region of unknown seas, penetrated the crust of the earth and the milky heavens above, and planted imperishable monuments as the result of constant search for knowledge.

Seizing the power and speed of steam, it has moved the commerce of the world. It has bridled the lightning and commanded it to bear messages from land to land. It has discovered the secrets which enable man to fly through the air with the precision and the speed of birds. The conquests of this spirit have kindled the fire of intelligence which will burn for ages and centuries.

To think and investigate are now considered among the greatest glories of life. He who ascends highest the mountain steeps of thought, or plunges deepest into the ocean of unsolved doubt, is considered a benefactor of mankind. The intellect of the thinker, daring to seize the bolts of thought, is not impaled by a tyrannical Jupiter.

Every phase of human economy has been investigated by the spirit of inquiry. This spirit is at the bottom of every progressive movement and is emblazoned on every landmark of civilization.

It has supplanted doubt, uncertainty, and superstition by promoting truth, knowledge, and progress. The influence of this spirit has trained the statesman, guided the schoolmaster, and educated the masses.

The spirit of inquiry should be made a subject of personal study. Our ability to learn and understand should be limited only by our power to acquire a greater fund of knowledge and skill. To be and to become—this is the tonic which should quicken the soul each new morning, the sparkling dew which should refresh the feet of those who tread the grassy sward.

EDUCATION

EDUCATION is the birthright of every child. It is the duty of those in authority to protect the child in the enjoyment of this right. The kind and extent of education are primarily to be decided by the parent, or guardian, but later the youth may choose additional training for a particular trade or profession.

The test of education is not outward prosperity, the enlargement of man's dominion over nature, or the increase of commercial intercourse. These are laudable, if they add to the storehouse of human purpose, or extend the scope of permanent happiness among men. The true test of education is in the influence it has upon the minds and hearts of the people.

The first step in education is to ascertain the present state of mind development Having learned the capacity of the mind, the instructor begins to teach new elements of knowledge. Step by step the learner is led to associate the new facts with those previously known, both of which are called into use from time to time by tests and examinations.

Successive tests may prove that the learner is making progress in learning the branches studied, but this is a small part of the actual accomplishment. The overshadowing importance of educational work is in the student himself, whose power of mind and body is enlarged and vitalized. A beneficent contagion drives the impulse of mental activity from one faculty to another—from the vision to the memory, from the memory to the imagination, from the imagination to the affections, and from the affections to the will—until the whole being is awakened. The thrill passes from the first point of contact to all the faculties, causing the remotest part of the soul to feel the impulse.

In education the environment of the child must not be overlooked as a potent factor. The mind is influenced, not only by the course of lessons, but by the conditions under which the instruction is given. The home life, the surroundings in the schoolroom, the companions on the playground, in fact, all the things heard and seen, have a vitalizing or depressing influence in the process of development. Frequently influences of which we are not conscious wield the greater force upon the mind and life of the learner.

Education, aside from the subject taught, exercises an influence upon character, A student who is trained to mental and physical labor absorbs cardinal virtues in addition to the elements of knowledge. He acquires habits of self-control, industry, and perseverance. The assignment of lessons causes him to accustom himself to other impulses than present inclinations. Eventually, through persistent work and study, he acquires ennobling habits and sturdy strength.

The scholar himself is the grandest type of perfection in education. He becomes enlarged, strengthened, and improved by the mental struggle through a decade or more of years. If facts are forgotten, they may be recalled by a trained mind in a systematic order when they are needed in actual service. The facts may even be lost, but a more important factor remains, the trained mind that gathers and vitalizes them.

Huxley, the English writer, gives the following definition of a liberal education: "That man, I think, has a liberal education who has been so trained in his youth that his body is the ready servant of his will and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold logic-engine, with all its parts of equal strength and in smooth working order, ready like a steam engine to be turned to any kind of work and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and the laws of her operations; one who is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of art or nature, to hate all vileness, and to respect others as himself."

The student is not inclined to measure life by years or decades, but rather by the wholesome culture of the mind. This culture brings an enlargement of power, a greater capacity to discharge the functions of life, and makes it possible for the mind to range in a more expanded field. Although such mental development enlarges the duties and responsibilities, it greatly multiplies the joy of living as well as the hopes and ambitions for future years.

Delightful task! to rear the tender thought,
To teach the young idea how to shoot,
To pour the fresh instruction o'er the mind,
To breathe the enliv'ning spirit, and to fix
The generous purpose in the glowing breast.
—*Thomson.*

The Student.

His years, 'tis true, are few,—his life is long;
For he has gathered many a precious gem;
Enraptured, he has dwelt where master minds
Have poured their own deep musings, and his heart
Has glowed with love of Him who framed us thus,
Who placed within this worthless tegument
The spark of pure divinity which shines
With light unceasing.

Yes his life is long,—
Long to the dull and loathsome epicure's,—
Long to the slothful man's,—the groveling herds,
Who scarcely know they have a soul within,—
Long to those who, creeping on to death,
Meet in the grave, the earthworm's banquet hall,
And leave behind no monument for good.
—*Select.*

How We Live.

We live in deeds, not years;
In thoughts, not breaths;
In feelings, not in figures on the dial;
We should not count time by heart-throbs.
He most lives
Who thinks most, feels the noblest, acts the best.
—*Bailey.*

How to Study

> The firefly only shines when on the wing;
> So with the mind; when once we rest, we darken.
> —*Bailey.*

THE object of study is twofold—to acquire knowledge and to cultivate the mind. Many people regard the former of greater importance, since they consider the acquisition of facts and of knowledge the prime end to be kept in mind. It is needless to say that this view is erroneous.

The real object of study is to secure the harmonious and healthful growth of all the faculties. To train the muscles, the mind, and the heart until they respond quickly and unfalteringly to the higher impulses should be the chief ambition of the student. Facts without a trained mind to use them are absolutely useless and unfruitful.

The student should aim to acquire correct and vigorous habits of thinking. The thinking should be deep, concise, and clear. He should be able to express thought by voice and pen in an unfaltering manner. Trained in this way, the mind becomes the master of facts and uses them with the force that begets influence.

METHOD. Begin to study from facts already known and thence proceed to the unknown. The explorer of an unknown region ascertains a complete description or record of the starting point, provides himself with the necessary instruments and provisions to endure the voyage, and proceeds with the greatest caution into the untrodden field. In a similar manner, the student must equip himself with the instruments of study, such as text-books and works of reference, and proceed from his state of mind development to the higher realm of mental activity. If he plunges recklessly into unexplored fields, entirely disconnected from his previous attainments, he hazards the danger of being lost in the floes of the frozen seas, or devoured by beasts in the malarial jungle.

PRINCIPLES. The mind develops only under favorable conditions, when it is in a suitable attitude to concentrate its powers upon the subject under consideration. Mental culture is not creative in its nature, hence the aim is to develop realities only from the possibilities possessed by the mind From these principles, the following rules may be deduced:

1. Take ample healthful exercise to stimulate the circulation and develop the physical powers Plan to have sufficient sleep so the mind will be clear for work during the entire period for study.
2. Do not plod and ponder. It is better to rest when you get tired than to try

to study when the mind is dull or overtaxed. The mind becomes dull when the body is tired. At this point it may be well to take up another subject. A change in the branch of study often is restful and tends to revive interest.

3. The student must cultivate an interest in the subject which he studies. Interest stimulates the attention and induces the mind to grasp for more information. Games and amusements are enjoyed because they are interesting. The same interest, the desire to master the subject, is essential to study with success.

4. Interest is stimulated by an understanding of the lessons. It is a mistake to try to teach what is beyond the comprehension of the learner. Any knowledge secured in an isolated and disconnected way is of little value in the general process of education. The spelling of words and the meaning of terms and phrases should be mastered and affiliated with facts previously learned.

5. We should study to acquire *power*. Frequently we find those who know *how*, but they lack the *power to do*. These two elements must be combined by judicious training. The power sought should enable us to think consecutively, to utilize judiciously, and to control and direct our mental and moral forces. In every act of the body and mind we expend energy. This energy is the life element, the vital force, which enables us to achieve success and obtain happiness.

6. We should not study merely to *get the answer,* but rather to *understand* the topic in all its relations. Strength is gathered by mental exercise, by acquiring and applying the new knowledge. The effort in learning should be compared to the exercise of the athlete instead of the work of the haymaker. Rather than aim at the *product*, we aim at the healthful, intelligent *effort* put forth.

7. The student needs to acquire habits of thoroughness. He should go to the bottom of the problem and master the cause and effect. Thoroughness does not imply reading all that may be said on a topic, but rather to read each sentence carefully, thoughtfully, and understandingly. Our work is thorough when we are able to explain the reason for each step as we proceed.

8. The student should apply the knowledge as it is learned from time to time. This should be done with tact, else he may become offensive to his companions. Such use of the new elements of knowledge causes him to employ the correct form from force of habit.

Those who know how to speak correctly, in a fluent and grammatical order, do themselves an injury when they fail to employ the best forms of which they are capable. The force of habit in using incorrect forms, both in thought and speech, is so strong that even the trained mind needs to guard against it with care.

9. We should study to acquire nobility of mind and heart. Every act may be likened to stone and mortar in the formation of character. Without character the most splendid attainments are as the house built upon the sand. With it deeds become the guardian angels of this mortal life.

10. If you have leisure hours, as most students have, plan to spend them wisely. Great men, men of affairs, have no hours of leisure, because they allot their time so it will count for something—either for business or for recuperation. It is important to utilize time wisely in this way, making it of utility in study, in rest, or in healthful exercise.

Our doubts are traitors
And make us lose the good we oft might win
By fearing to attempt. —*Shakespeare.*

Needs of Man

Food
Clothing
Shelter
Heat
Education

Those who think must govern those who toil.—*Goldsmith.*

THE needs of man are varied and numerous. Simplest in the early period, they increase in number and complexity as man progresses upward in the scale of civilization.

Primitive man considered few wants and was easily satisfied. He lived close to nature and depended largely upon himself for food and shelter. The complexity of human interdependence was not recognized until long after intelligence had been placed above physical strength.

Every discovery and invention has added to the requirements of man in the home, in society, and in public life. It is now considered that he lives most who acts the noblest and thinks the best.

This text and outline of study is of importance to those who feel the need of a work of general reference. It was prepared and edited by a corps of writers who had in mind the requirements of mankind along the line of practical information. Consult the articles on AGRICULTURE, ARCHITECTURE, CIVILIZATION, COMMERCE, FOOD, HYGIENE, PLANTS, SCHOOLS, WEAVING, etc.

Outline.

I. FOOD.
  1. Vegetable.
    1. Where found.
    2. How obtained.
      Farming.
      Gardening (Market).
    3. Kinds.
      1. Fruit.
      2. Grain.
      3. Vegetables.
    4. Occupations growing from this.
      1. Farming.
      2. Gardening.
      3. Trade.
        Wholesale—Commission houses.
        Retail—Grocery stores, bakeries, etc.
      4. Transportation.
      5. Commerce.
  2. Animal.
    1. Where found.
    2. How obtained.
      1. Hunting.
      2. Fishing.
      3. Trapping.
      4. Stock raising.
      5. Trade.
        1. Wholesale—Packing houses.
        2. Retail—Butchers
    3. Kinds.
      1. Poultry.
      2. Pork.
      3. Beef, Veal.
      4. Mutton, Lamb.
      5. Fish, Oysters.
      6. Dairy products.
    4. Occupations.
      1. Trade.
        1. Wholesale—
          1. Packing houses.

            2. Commission houses.
        2. Retail—
            1 Butchers.
    3. Mineral.
        Iron.
        Lime.
        Salt.
        Water.
        Soda.
        Magnesium.

II. CLOTHING.
    1. Where found—Trade centers, zones.
    2. How obtained.
        1. Manufactured.
    3. Kinds.
        1. Vegetable.
            1. Cotton.
            2. Flax.
            3. Hemp.
            4. Rubber.
        2. Animal.
            1. Silk.
            2. Leather.
            3. Wool.
            4. Furs.
            5. Feathers, boas.
            6. Hair.
        3. Mineral.
            1. Glass.
            2. Steel or Iron (Coat of mail, armor).

III. SHELTER.
    1. Kinds.
        1. Stone.
            1. Kinds.
                1. Building stone.
                2. Granite.
                3. Marble.
            2. Where found—Quarries.
            3. How obtained.
            4. Occupation—Stone cutting.
        2. Wood.
            1. Kinds.
                1. Oak.
                2. Pine.
            2. Where found.
                1. Forests.
            3. How obtained.
            4. Occupation—Lumbering.
        3. Brick.
            1. Kinds.
            2. Where found.
            3. How obtained

IV. HEAT.
    1. Materials.
        1. Coal.
        2. Oil.
        3. Gas.
        4. Wood.
        Where found.
        How obtained.

V. EDUCATION.
    1. Need of—
        Physical.
        Intellectual.
        Moral.
    2. Public and private.
    3. Classes of schools.
        1. Kindergarten.
        2. Elementary.
        3. Academical.
        4. Technical and professional.
        5. The University.

THE BUILDERS

All are architects of Fate,
  Working in these walls of time;
Some with massive deeds and great,
  Some with ornaments of rhyme.

Nothing useless is, or low;
  Each thing in its place is best;
And what seems but idle show
  Strengthens and supports the rest.

For the structures that we raise,
  Time is with materials filled;
Our to-days and yesterdays
  Are the blocks with which we build.

—*Longfellow.*

Nature Study

> There is a pleasure in the pathless woods,
>   There is a rapture on the lonely shore;
> There is society where none intrudes,
>   By the deep sea, and music in its roar.
>
> —*Byron.*

DEFINITION: Nature Study embraces a study of the objects in nature, such as animals, minerals, and plants.

The period of childhood is the most fruitful time to cultivate the emotions and to build up the positive side of character. It is primarily the formative period, when the eyes are filled with pictures and the fancies spring as buds of the realities which a happy maturity of years may bring.

Nature furnishes the inspirations which are really worth while. It enables the author to write with tenderness and trueness to life; it teaches the painter to reduce to the canvas what we call the delicate and the beautiful in art. But to the student, especially in childhood, nature does even more, since it awakens the love and interest in the beauty and realities which are encountered everywhere in the universe.

Plants are the simplest and most common objects with which we come in contact and are well adapted for use in the early lessons. Where certain plants grow, how they are constructed, and in what order the several parts develop are interesting topics. Attention may be directed to the grouping of plants, or, in other words, to classification. Both botany and zoölogy furnish large fields for observation and study, but the processes in the latter are somewhat complicated. Therefore, the study of plants should precede the study of animals. From these the student may proceed to geography, the elements of physics and chemistry, the study of minerals, and ultimately to physiology.

If the teacher hopes to guide her pupils wisely, she must herself go to nature for inspiration. It is necessary for her to learn to know and love the flowers, the birds, and the trees in order to induce her students to observe their habits of growth and the functions they serve in nature. Each object which is studied should be sketched and made the topic for a written lesson, after which all the statements should be verified by reference to the text-books and the cyclopaedia. Practice work in drawing and composition, conversational lessons, and the study of selections from literature are earnestly commended.

NATURE

***

Nature speaks in language olden,
Speaks in tones that all may hear;
Tells of ages that were golden,
Tells of storm-nights dark and drear.

She has secrets in her keeping,
Secrets hid from you and me,
They have been for ages sleeping,
Stored in earth and air and sea.

In the streamlets you will hear them,
As they ripple o'er the stone,
In the forests you are near them,
Near them in the desert, lone.

Hear them in the tempest raging;
Hear them in the summer breeze;
See them in the season's ageing;
See them in the spreading trees.

Every flower, it has its story;
Every stone its tale to tell;
Legends tint the sunset glory,
History moulds the mollusk's shell.

—— I. Noble.

-SH-

TYPEWRITER LESSON.

Objects to be Attained.

1. To increase the power of observation in children.
2. To awaken and enlist the interest of the children in their immediate environment.
3. To give practical information about the common things of life.
4. To prepare children to appreciate the literature which nature has inspired.
5. To develop the higher nature of the human being—the spiritual, the aesthetical, and the ethical.

Outlines in Nature Study.

I. Fall Term.

A—The common flowers, fruits, grasses, weeds, leaves, trees, etc.

1. Collect specimens and bring to schoolroom for study (Where possible, children should make the collection).
2. Make study of each specimen as to color, size, form, where found, how grown, short description, use, etc.
3. Represent each in color work in drawing (The best drawings at the time to be collected and preserved).
4. Collect pictures of these things and classify for study.

B—The more common insects and worms.

1. Covering, color, size, form, habits, and use (Specimens to be collected, brought into the schoolroom, studied, and preserved for future use).
2. Collect and classify pictures for study.
3. Represent in color drawings (Preserve the best).

C—Domestic and common wild animals.

1. Covering, color, size, habits, and use (Children to make observations and tell what they observe).
2. Collect and classify pictures for study.
3. Represent in color drawings (Preserve the best).

D—Domestic fowls and birds.

1. Teach something of color, size, habits, dress, and use of each (Children to be given an opportunity to make observations about these fowls and birds).
2. Collect and classify pictures for study (Where possible to get a stuffed specimen, do so).
3. Represent in color drawing, as far as possible, a picture of each (Preserve the best).

E—Observations on the weather.

1. Clear and cloudy days.
2. Calm and windy days.
3. Warm and cold days.
4. Rainy days.
5. Make chart indicating simplest observations and preserve it.
6. As far as possible, collect pictures.
7. Represent in color drawings little scenes showing sunshine, clouds, etc.

F—Observations on the surface of the earth and simple directions and distance taught.

1. Hill, hollow, brooklet, stream.
2. Represent these in drawings.
3. North, south, east, and west.
4. Far and near, etc.

G—Literature and language.

1. Memory gems and poems about nature.
2. These to be selected and suited to the topic under consideration and taught at the time.
3. Story of Hiawatha.
4. Other stories, as "Little Red Riding Hood," "The Three Bears," etc. (These to be acted and played).

H—Finally, as a fitting close for the fall work, the idea of the ingathering of the harvests, as represented in the Thanksgiving Celebration, etc. The Evening of Life.

II. Winter Term.

A—Preparation of different things for winter.

1. Flowers, grasses, weeds, trees, etc., closing of the buds, changes in the grass, weeds, trees. Why?
2. Insects; change. What becomes of them?
3. Fowls and birds, change. Migration of birds
4. Animals change in covering. Why?
5. Continue observations on weather —Snow, ice, cold, frost, and fire.
6. Winter scenes represented in drawings.
7. Pictures collected and classified.
8. Children's sports and games
9. Memory gems and poems suited through the season.
10. Continue the study of stories, acted and played. The idea here represented is that all nature goes to sleep. It is the Nighttime of Life.

III. Spring Term.

A—Preparation for spring.

1. Opening of the buds (Get the earliest buds and twigs for study).
2. The springing up of the grass and weeds.
3. The leafing of the trees.
4. The flowering of the plants.
5. The coming of the birds and insects.
6. Change in the animals—Shedding of their winter covering, etc.
7. Change of fowls.
8. Memory gems and poems suitable to the season and the lesson.
9. Stories acted and played.
10. Pictures collected and classified. The idea here represented is the awakening of all nature. The Morning of Life.

Correlated Subjects.

ANIMALS.

Birds—Condor, carrier pigeon, dove, jay, lark, robin, stork.
Domestic—Camel, cat, cattle, dog, elephant, horse, swine.
Extinct—Archaeopteryx, mammoth, mastodon, megatherium, pterodactyl.
Fabled—Chimaera, dragon, griffin, mermaid, phoenix.
Fowls—Duck, goose, guinea, pigeon, poultry, turkey.
Insects—Ant, beetle, butterfly, flea, fly, gnat, mosquito.
Miscellaneous—Dodo, chameleon, frog, monkey, prairie dog.

MINERALS.

Aluminum—Discovery, utility, process of making.
Coal—Anthracite, bituminous, canal, lignite, coke; uses of.
Cobalt—Commercial uses, where mined (Canada has the largest output).
Copper—History of, where found, quantity produced, uses of.
Gold—Mining, uses of, quartz, gold beating.
Iron—History of, where found, uses of.
Lead—Production of, uses, value in the arts.
Related Topics—Amalgam, assaying, blast furnace.
Silver—Where mined, uses, smelting, quantity produced.

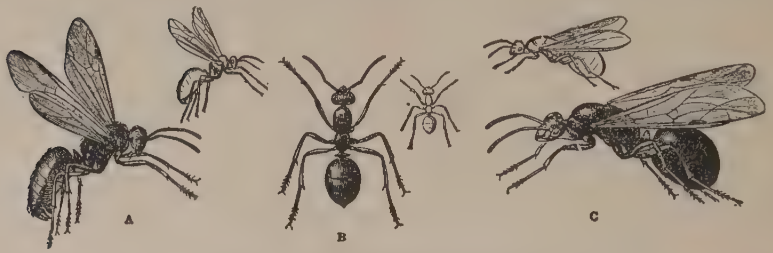
PLANTS.

Cereals—Barley, corn, kafir corn, oats, rye, spelt, wheat.
Flowers—Carnation, dahlia, geranium, hollyhock, phlox, sunflower.
Fungi—Lichens, mushrooms, rust, smut, toadstool.
Fibers—Cotton, esparto, flax, hemp, jute, ramie.
Forest Trees—Ash, elm, mahogany, oak, pine, rosewood.
Fruit—Almond, apple, breadfruit, lemon, orange, palm, quince.
Miscellaneous—Bamboo, coffee, tea, seeds, tobacco, weeds.
Vegetables—Bean, cabbage, lettuce, onion, pea, potato.

Ant.

I. Hymenoptera (Two winged).
II. Description.
- 1. Wings—Four membraneous.
- 2. Head—Triangular.
- 3. Mouth parts—Arranged for biting or sucking.
- 4. Antennae—Slender.
- 5. Eyes—Two kinds.
  - A. Compound, consisting of fauces.
  - B. Ocelli (Little eyes).
- 6. Sense of smell—Very acute.

III. Kinds.
- 1. Queen (Winged).
  - A. Size—Much larger than males.
  - B. Duty—To deposit eggs which are scattered anywhere in the nest.
- 2. Males (Winged).
  - A. Size—Smaller than female.
  - B. Use—To fertilize eggs.
  - C. Death—Soon after pairing season.
- 3. Workers (Wingless).
  - A. Size—Smallest of class.
  - B. Intelligence—Greatest and most interesting.
  - C. Duties—
    - a. To build home and streets.
    - b. To care for eggs.
    - c. To feed the larvae.
    - d. To care for pupae.
    - e. Acquisition of food.
    - f. To act as soldiers.
    - g. To keep habitation in repair.



RED ANT (Magnified and Natural Size).
A. Male; B. Worker; C. Female.

IV. Metamorphosis.
- 1. Eggs—(Very small).
  - A. Deposited by queen.
  - B. Carried by workers and placed in sun in morning and at night stored in nest.
- 2. Larvae—Small, white worms.
  - A. Carried back and forth by workers same as eggs.
  - B. Nourished by liquid from stomach of workers.
  - C. Spinning of cocoon.
- 3. Cocoon—
  - A. Cared for in same way as eggs and larvae.
  - B. Cut out of cells by workers when ready to become perfect ants.

V. Habits and Construction of Homes.
- 1. Homes—
  - A. Ant-hills—Built in ground and cones, or hills, constructed over them.
    - a. Rooms and galleries—Many.
    - b. Height—In tropics from 12 to 18 feet.

B. Others construct pillars with extended arches, covered with loose straw and sticks.
C. Mining ants—Construct long galleries in clay.
D. Carpenter ants—Build their homes in trees.
E. Houses of leaves—Constructed by species in Australasia.

VI. Food—
1. Sugar—Obtained from vegetables.
2. Honeydew—Sugar fluid found in the aphis (an insect).
3. Animal food—Valuable in clearing away carrion.
4. In tropical region, some species prey upon living animals.
    A. Others kill birds, reptiles, etc., by attacking in swarms.
5. Characteristics.
    A. Intelligence—Almost beyond belief.
    B. Wonderful ingenuity in carpentry, masonry, and mining.
    C. Sensitive of changes of temperature and moisture.
    D. Sound—Exceed human ability in detecting sound waves.
    E. Dead—Removed promptly and buried.
    F. Sign language.

VII. Kinds.
1. Common red ant. 2. Black ant.
3. Umbrella, or parasol, ant—So-called from habit of carrying leaves on its back.
4. Honey ant—Secretes and stores honey in abdomen.
5. White ants—(Not true ants).

Test Questions on the Ant.

What classes of ants have wings? 108.

Which are the most intelligent? 109.

Which perform the work of the community? 108.

Where do ants live and how many in a colony or community?

Which ants are the largest? Which the smallest? Which the most numerous?

How large are the eggs of ants and where are they deposited?

Give two ways in which a worker may be distinguished from a male or female ant.

Tell how the eggs are taken care of and hatched.

Tell how the larvae are fed and cared for by the workers.

What can you say about the wonderful intelligence of ants in building houses? In mining? In carpentry work?

In what countries are ant-hills found which are from twelve to eighteen feet high?

What kind of ants live in growing trees?

In what countries are ants found that glue leaves together with which to build their houses?

Do ants have a language to communicate with each other?

Are they sensitive to sound and changes in temperature?

In what country are they used for food and how are they prepared?

How does the ant milk the aphis?

Do some ants eat animal matter?

What species of ants live principally upon wood?

How do white ants, or termites, differ from common ants?

How many eggs will a single ant lay?

In what island was there a remarkable scourge of ants about 1780 and how were they destroyed?

Name three of their principal enemies.

What species of ants are very dangerous pests?

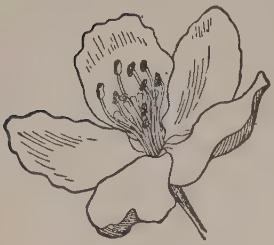
What can you say of the ants' love for sugar?

When does their second birth take place?

Give all the points you can about the similarity of ants and bees.

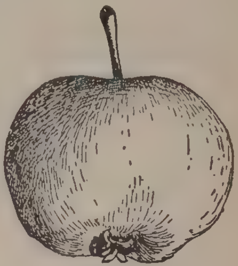
Apple.

- I. FAMILY.
- II. DESCRIPTION.
  - 1. Tree.
    - A. Height—Moderate, seldom exceeding 30 ft.
    - B. Branches—Spreading.
    - C. Leaves—Oval.
    - D. Flowers—Pinkish white, produced from very short shoots.
    - E. Fruit.
      - a. Pulp—Hard and juicy, formed around a core which has five cells.
        - (a) Cells (Contain 2 to 3 seeds).
      - b. Color—Various—Limited to shades of red, green, and yellow.
      - c. Shape—Round or elongated.



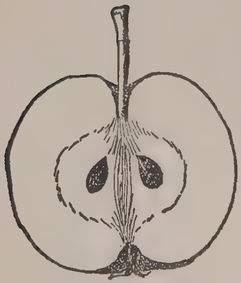
FLOWER.

- III. CLASSES.
  - 1. From where derived.
    - A. Wild crab.
  - 2. How improved.
    - A. By ingrafting.
    - B. Naturalization.
  - 3. General classes.
    - A. Summer.
    - B. Autumn.
    - C. Winter.
      - a. Varieties of classes (Many thousand).
        - (a) Wine Saps.
        - (b) Danvers Winter Sweet.
        - (c) Pippins; Ben Davis.
        - (d) Willow Twigs.
        - (e) Duchess of Oldenburg.
        - (f) Hundred of others.



FRUIT.

  - 4. Seedless apple.
    - A. Propagation—Evolved by propagation at Grand Junction, Colo.
    - B. Characteristics.
      - a. Seedless.
      - b. Coreless.
      - c. Wormless.
      - d. Flower—Missing.
      - e. Meat—Quite solid, of good flavor, and keeps well.
- IV. USES.
  - 1. Cooking.
    - A. Canning.
    - B. Baking.
    - C. Preserving.
    - D. Jelly.
  - 2. Cider.
  - 3. Medicinal compounds.



SECTION OF APPLE.

- V. WHERE FOUND.
  - 1. Native—Temperate regions of Asia and Europe.
  - 2. Introduced into America by Puritans.
  - 3. Cultivated where—Southern Canada, Middle Atlantic states, Mississippi Valley, and Pacific coast.

VI. PROPAGATION.
- 1. New varieties—How obtained.
  - A. By seeds.
  - B. Mostly by grafting.
- 2. Orchard.
  - A. Ground—Should be carefully prepared.
  - B. Distance of trees—Best results obtained about 30 ft.
  - C. Good crop—How obtained.
    - a. Land should be tilled until about middle of July.
    - b. Hence, sown with clover or cowpeas.
  - D. Number of trees in United States (200,000,000).
  - E. Yearly crop about 100,000,000 barrels.

The Apple.

Doth thy heart stir within thee at the sight
Of orchard blossoms upon the mossy boughs?
Doth their sweet household smile waft back and glow
Of childhood's morn—the wondering fresh delight
In earth's new coloring, then all strangely bright,
A joy of fairyland?

An apple orchard is sure to bear you several crops beside the apple. There is the crop of sweet and tender reminiscences, dating from childhood and spanning the seasons from May to October, and making the orchard a sort of outlying part of the household. You have played there as a child, mused as a youth or lover, strolled there as a thoughtful, sad-eyed man. Your father, perhaps, planted the trees, or reared them from the seed, and you yourself have pruned and grafted them, and worked among them, till every separate tree has a peculiar history and meaning in your mind. Then there is the never-failing crop of birds,—robins, goldfinches, king-birds, cedar-birds, hair-birds, orioles, starlings,—all nesting and breeding in its branches and fitly described by Wilson Flagg as "Birds of the Garden and Orchard."—John Burroughs.

Come Let Us Plant the Apple Tree.

Cleave the tough greensward with the spade;
Wide let its hollow bed be made;
There gently lay the roots, and there
Sift the dark mold with kindly care,
And press it o'er them tenderly—
As, round the sleeping infant's feet,
We softly fold the cradle-sheet;
So plant we the apple tree.

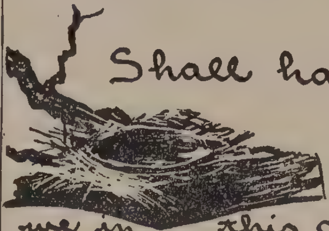
What plant we in this apple tree?
Buds, which the breath of summer days
Shall lengthen into leafy sprays;
Boughs where the thrush with crimson breast,
Shall haunt and sing and hide her nest;
We plant upon the sunny lea,
A shadow for the noontide hour,
A shelter from the summer shower,
When we plant the apple tree.

What plant we in this apple tree?
Sweets for a hundred flowery springs
To load the May wind's restless wings,
When from the orchard row he pours
Its fragrance through our open doors;
A world of blossoms for the bee,
Flowers for the sick girl's silent room,
For the glad infant sprigs of bloom,
We plant with the apple tree.

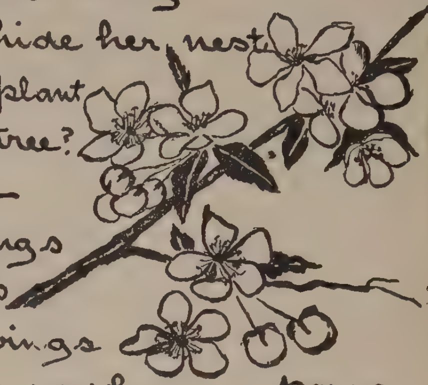
What plant we in this apple tree?
Fruits that shall swell in sunny June,
And redden in the August noon,
And drop, when gentle airs come by,
That fan the blue September sky,
While children come, with cries of glee
And seek them where the fragrant grass
Betrays their beds to those who pass,
At the foot of the apple tree.

—*William Cullen Bryant.*

What plant we in this
apple tree?
Buds, which the breath
of summer days
Shall lengthen into leafy
sprays;
Boughs where the



thrush, with crimson breast
Shall haunt and sing
and hide her nest.



What plant
we in this apple tree?
Sweets for a hundred
flowery springs
To load the May wind's
restless wings
When from the orchard row he pours
Its fragrance through our open doors,
What plant we in this apple tree?
Fruits that shall swell in sunny June,
And redden in the August noon,
And drop, when gentle airs come by,
That fan the blue September sky

While children come with
cries of glee,
And seek them where
the fragrant grass
Betrays their bed
to those who pass,
At the foot of the apple tree.
William Cullen Bryant.

BLACKBOARD LESSON.

Test Questions on the Apple.

To what family of plants does the apple tree belong? 120.

Of what continent is it a native?

What can you say of its antiquity?

From what country was the apple introduced into America?

What is the parent apple of all the varieties grown and of what country is it a native?

Describe the wood of the apple tree and tell for what purposes it is used.

What is the height of the apple tree? 120.

Name five winter varieties common to Illinois. Name three summer varieties. 1175.

Give four different ways of grafting trees.

What is the object of grafting?

What is bud grafting?

What materials are used in grafting?

What kind of plants are budded? 396.

Describe the apple tree borer. 121.

Give three preventives.

What other fruit tree does it attack?

What can you say as to crab and sour apple vinegar compared to that made from wine, as to quality and flavor? 3051.

What is added to the cider to improve the flavor? At what temperature does cider ferment very rapidly? 3050.

How is cider brandy, or apple jack, made? 581.

Planted thirty feet apart, how many apple trees will an orchard of ten acres contain?

Which would be the more profitable, an apple orchard yielding three bushels of apples per tree at $.40 per bushel (40 acres), or a wheat field of 160 acres producing 25 bushels per acre at $1.00 per bushel (Apple trees set 30 feet apart)?

In what sections of United States are apples cultivated most extensively?

To whom is credit given for propagating the seedless apple? 120.

How many seedless apple trees constituted the world's stock in 1905? 121.

Does the seedless apple tree produce blossoms?

Describe the meat of the seedless apple.

Why is the seedless apple tree less liable to injury by late frost than other varieties?

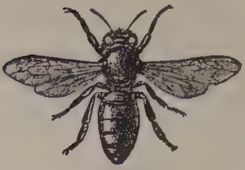
How is it protected from injury by insects? 121.

What can you say about the size and keeping qualities of the seedless apple?

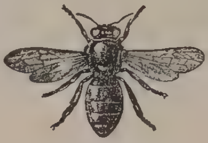
Has the seedless apple a core and is it wormless?

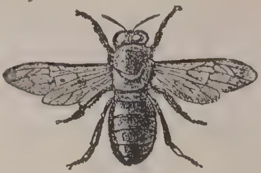
In Autumn:
"You think I am dead," the apple tree said,
"Because I have never a leaf to show—because I stoop,
And my branches droop, and the dull gray mosses over me grow!
But I'm all alive in trunk and shoot; the buds of next May
I fold away, but I pity the withered grass at my root."
—*Edith Thomas.*

Bee.


QUEEN.

- I. CLASSES.
  - 1. Social.
    - A. Honeybee.
    - B. Bumblebee.
  - 2. Solitary Bees.
    - A. Leaf cutting bee.
    - B. Carpenter bee.
    - C. Mason bee.
- II. SPECIES.
  - 1. Honeybee.
    - A. Queen.
      - a. Eggs—Lays from 2,000 to 3,000 daily.
        - a. Size—One-twelfth of an inch long.
        - b. Color—A bluish white.
        - c. Shape—Oblong.
        - d. Period of incubation—Three days.
        - e. Larvae.
          - (1) Color—White.
          - (2) Food—Pollen or beebread.
          - (3) Period of larval stage—Five to six days.
        - f. Pupae.
          - (1) Time—Thirteen days.
          - (2) Envelopment–Cocoon.
        - g. Where deposited.
          - (1) For queens—Ordinary cell enlarged when queens are desired and fed on "royal food."
          - (2) For workers—Ordinary cell.
          - (3) For drones — Larger cell and hatched from unfertilized eggs.
      - b. Size — Longer and more slender than male or worker.
      - c. Age—5 to 30 months.
    - B. Workers.
      - a. Number—From 10,000 to 50,000.
      - b. Nurses—Youngest workers.
        - a. Duties.
          - (1) To feed larvae.
          - (2) Enlarge cells for queen and feed them "royal food" or bee jelly.
          - (3) Make bee jelly for larvae.
          - (4) Time of service (About one week).


WORKER.


DRONE.

- c. Uses.
  - a. Gather and make honey.
  - b. Protect the hive.
  - c. Comb building.
  - d. Clean out the hive.
  - e. Cross fertilize plants.
  - f. Repair the hive.
  - g. Store beebread.
  - h. Workers kill the drones.
- d. Habits.
  - a. Flight.
    - (1) Distance—Five miles.
    - (2) Bee line.
  - b. Swarming.
    - (1) Frequency (From one to four times a year).
    - (2) Hiving.
  - (3) Old queens. Young queens.
- e. Honey.
  - a. Where obtained.
    - (1) From pollen of flowers.
    - (2) Honey dew.
    - (3) Sweet juices of plants.
    - (4) Robbing other bee hives.
  - b. How collected.
    - (1) Pollen carried on hair of legs.
    - (2) Sweet juices (Taken up by the trunk in stomach or honey bag).
  - c. Honey cell.
    - (1) Size (Larger than hatching cell).
    - (2) Construction — Horizontal.
    - (3) How filled and sealed.
    - (4) How retained in cell (By capillary attraction).
  - d. Hive—Construction.
    - (1) Frames.

            (2) Honey comb foundation.
        e. Honey extractor.
    C. Drones.
        a. Number—From 500 to 800.
        b. Why so called—From the low humming sound made in flight.
        c. Uses.
            a. To act as royal escorts.
            b. To fertilize the eggs.
2. Bumblebee.
3. Carpenter Bee.
    A. Home—In wood.
        a. How made—By boring in trees.
        b. Tunnels.
            a. Rapidity of boring—¼ to ½ inch daily.
            b. Direction.
                (1) Against grain, at first.
                (2) With grain, afterward.
                (3) Length, one to two feet.
                (4) How divided, into cells. Cells contain pollen and eggs.
                (5) Partitions, how made. Powdered dust of wood.

III. FOOD.
    1. Pollen.
    2. Sweet juices and honey.
    3. Beebread (Composition of flower dust mixed with water and honey).

IV. WEAPON OF DEFENSE.
    1. Sting.

V. ENEMIES.
    1. Moth millers and birds.
    2. Toads and mice.
    3. Lice and flies.

VI. LANGUAGE.
    1. How expressed. According to Lubbock, "the language of bees is expressed by humming."

VII. AGE—WORKERS.
    1. Spring bees — Two to three months.
    2. Fall bees—Six to eight months.
    3. Old bees.
        a. How distinguished (Darker color; wings look worn).

VIII. DEATH.
    1. Wearing out of wings.
    2. Diseases.
    3. Loss of sting.
    4. Other causes.

Questions on the Bee.

Of what sex are worker honeybees? 258.
What becomes of the drones in the fall?
When the egg first hatches, what does the larva look like? What is it fed if a new queen is desired? Note 1.
Why is it difficult to raise red clover where there are no bumblebees? 260.
How is pollen carried? 259.
Does the queen ever leave the hive?
Why is the male bee called the drone?
Is wax gathered or made?
How do bees carry honey to the hive?
What is the shape of a cell? What keeps the honey from running out before it is capped over? 1153.
What is artificial honey?
After the egg is laid, how long before a full grown bee develops?
How many queens live in a swarm?
What is meant by the term *bee line?*
What is a drone-laying queen? Note 3.
From what plant is the finest grade of honey made? Note 4.
How far will a bee go to gather honey? Note 8.
How can you distinguish an old bee from a young one? Note 8.
What causes the natural death of workers and where do they die? Note 8.
Where do injured bees die? Note 8.
Tell how to locate a bee tree. Note 8.
What is beebread? How is it made?

When do mice infest bee hives? Note 7.
Name five enemies of bees. Notes and page 259.
How far may bees be sent through the mails? Note 2.
What is *royal food?* Note 1.
Give the method the bee raiser uses to hatch queens for mercantile purposes.
What can you say about the habit of the kingbird in catching bees? Note 6.

Notes on the Bee.

Queens.

1. Queen bees have stings, but they will not sting a person nor use them for any purpose except to kill other queens. Should a queen die or be taken from the hive when there are eggs in the cells, the workers at once make larger pear-shaped cells, placing them vertically, and supply the larva with *royal food* before capping them over, thus hatching another queen. They generally do this with several cells, thus insuring at least one queen. Bee keepers take advantage of this and, by removing the queen, cause a number of queens to be produced for mercantile purposes. As they hatch, they must be inclosed in a wire screen so they cannot get together, or they will kill each other.

Mailing Bees.

2. Bees may be securely inclosed in a cage or box and transported by mail without injury. They can be sent safely a long distance in this way, but sugar or other food must be inclosed in the box. A queen must never be transported without placing two or three workers with her, as she will starve; she cannot or will not feed herself.

Drone-Laying Queen.

3. Should a queen die and leave no eggs in the cell, the colony will gradually perish. Under these conditions sometimes a worker will become fertilized and lay eggs, which will hatch, but the product is a hybrid and will do nothing but eat. In looks, it is a small-sized drone. Such a worker is called a *drone-laying queen.*

Honey and Fertilization of Clover.

4. White clover makes the finest grade of honey, but the blossoms of the linden tree and buckwheat make large quantities during their season. Honeybees cannot work on mammoth red clover for the reason that the proboscis is not long enough to reach the nectar. It is erroneous to speak of honeybees cross fertilizing red clover. It is the work of the bumblebee or other insects.

Queens and Swarming.

5. About two weeks after bees swarm, if you place your ear against the outside of the old hive, you can hear the queen or queens calling. This is the time to look for the second swarm. After the second swarm, if it swarms the second time, the third swarm will come off, but not later than the third day; the fourth swarm comes out about two days after the third. One queen, in the struggle for supremacy, drives another from the hive and some of the bees follow. This is the cause of swarming, the number of swarms depending on the queens that are driven out. The third and fourth swarms usually are small and undesirable. If bees do not swarm the second time inside of three weeks after the first, they will likely not swarm any more during the season.

Kingbird.

6. The kingbird, or bee martin, is a very common enemy of bees. From the fact that it has a bunch of red feathers on top of its head, the story is current "that it ruffles up these feathers to resemble a beautiful flower and, when a bee comes along to sip honey from the supposed flower, it is snapped up by the bird."

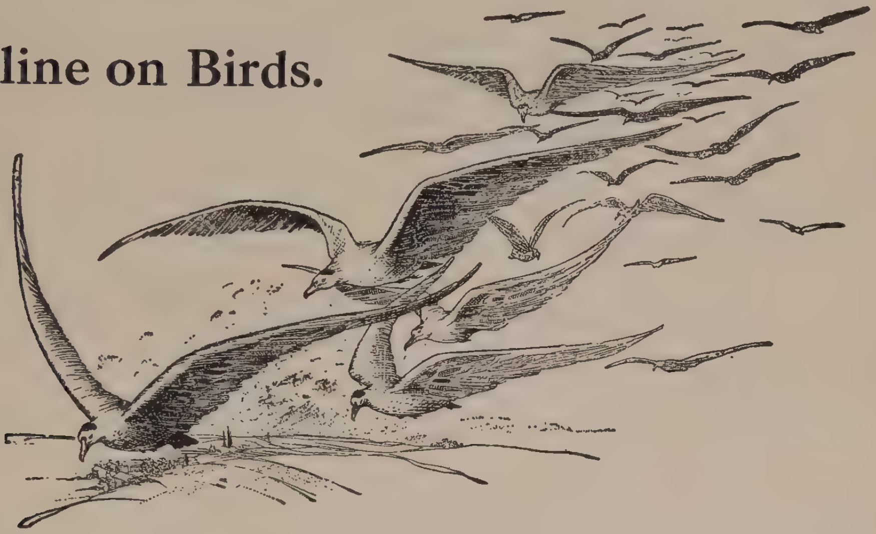
Toads and Mice.

7. If you see a toad sitting innocently on the ground or board close in front of the hive, watch him and if you have a quick eye you will see how he gets his meal. Mice will sometimes infest hives of bees in the winter.

Old Bees, Beebread.

8. A bee tree may be found by placing honey or sugar so bees can find it and where their return flight may be observed. It is said that bees will go five miles to gather honey. Old worker bees may be distinguished by having a darker shade than young bees and the wings being more or less frayed. When the wings wear out they crawl as far away from the hive as possible. If a worker is injured it leaves the hive to die. Pollen mixed with honey and water is stored in quantities for winter use and known as beebread.

Outline on Birds.



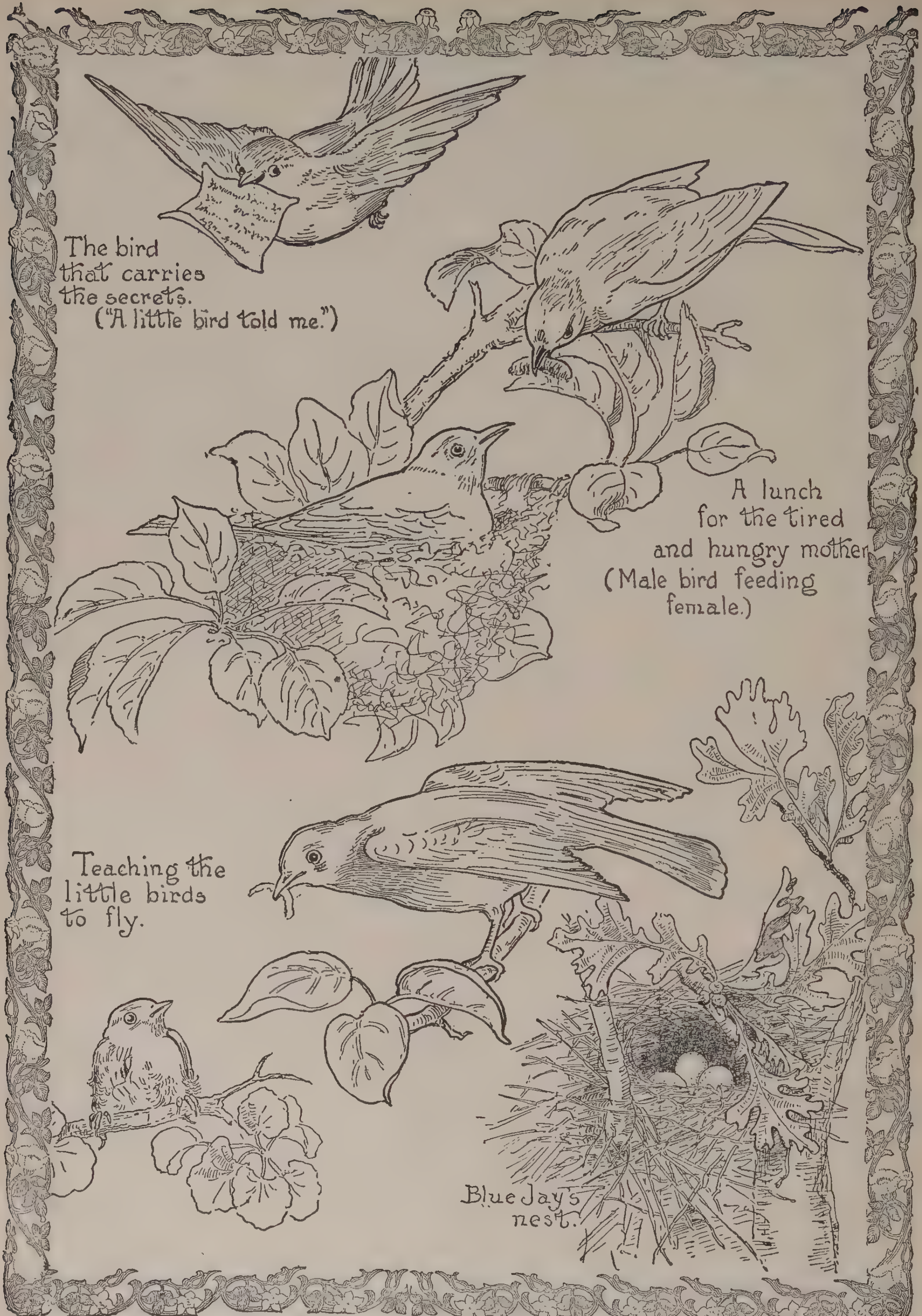
Classification......
- 1. Climbers (Scansores)—Cockatoo, parrot, woodpecker.
- 2. Perchers (Insessores)—Canary, goldfinch, robin.
- 3. Raveners (Raptores)—Eagle, hawk, vulture.
- 4. Runners (Cursores)—Emu, ostrich, rhea.
- 5. Scratchers (Rasores)—Fowl, pheasant, pigeon.
- 6. Swimmers (Natatores)—Duck, goose, gull, swan.
- 7. Waders (Grallatores)—Crane, heron, snipe, stilt.

Physical Features..
- Covering of body.
- Bones and skeleton.
- Flight.
- Sight and hearing.
- Touch and taste.
- Song or voice.
- Economic value.

Topics for Study..
- Animal heat and intelligence.
- Birds of passage.
- Eggs—Size, color, value.
- Food—Insects, grain, worms.
- Feathers—Plumes and quills.
- Fossils—Remains and footprints.
- Nativity—Where found.
- Nests—Form and materials.

Now the days are full of music!
All the birds are back again;
In the tree-tops, in the meadows,
In the woodlands, on the plain.
See them darting through the sunshine!
Hear them singing loud and clear!
How they love the busy springtime,
Sweetest time of all the year!

—*Katherine Beebe.*


The bird that carries the secrets. ("A little bird told me.")
A lunch for the tired and hungry mother (Male bird feeding female.)
Teaching the little birds to fly.
Blue Jay's nest.

BLACKBOARD LESSON.

Kindness to Animals.

Be kind to dumb creatures, nor grudge them your care,
God gave them their life, and your love they must share,
And He who the sparrow's fall tenderly heeds
Will lovingly look on compassionate deeds.
—*Selected.*

You call them thieves and pillagers; but know
They are the winged wardens of your farms,
Who from the cornfields drive the insidious foe,
And from your harvests keep a hundred harms;
Even the blackest of them all, the crow,
Renders good service as your man-at-arms,
Crushing the beetle in his coat of mail,
And crying havoc on the slug and snail.
—*Longfellow.*

Questions on Birds.

For what three traits is the falcon noted?

What birds are noted for their beautiful plumage?

Name a list of song birds. Which sex of birds is the singer?

What are laughing birds and where are they found?

Which birds are noted for their speedy flight?

Of what country is the bald eagle an emblem? Of what qualities are eagles symbolical? 853.

Why is the condor known as the greedy bird?

Eggs and Nests.

Of what materials do birds build their nests? 298.

What are mason birds?

How do water birds build their nests?

How are the eggs of sea birds gathered?

Tell how the owls of the class of mining birds secure nests.

Name some birds of which the eggs are used for food.

What bird lays the largest egg?

What is the average length of the hatching season?

Commercial Value.

Name some birds the feathers of which are used in millinery.

Of what birds is the flesh eaten?

How are egrets obtained?

What is guano and where is it found chiefly?

Besides being valuable as food, what other uses are made of eggs?

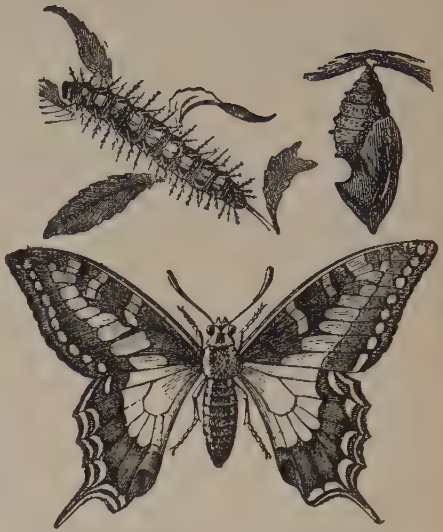
Explain how birds are trained for falconry. 971.

How do birds aid in the destruction of insects?

Where were pigeons first used as carriers? Relate some instances where these messengers proved valuable.

Butterfly.

- I. Lepidoptera (Scaly winged).
- II. Description.
  - 1. Body.
    - A. Head.
      - a. Antennae—Club shaped.
      - b. Eye—Compound.
      - c. Tongue — Two tubular threads for sucking and coiled when not in use.
    - B. Thorax.
      - a. Legs—Six.
        - (a) Weak and used only when resting or feeding.
      - b. Wings—Large and strong.
        - (a) First pair triangular, second rounded.
        - (b) Richly colored and covered with beautiful scales.
        - (c) Power—Great.
        - (d) Position—Held upright when at rest.
    - C. Abdomen.



CATERPILLAR, PUPA, AND BUTTERFLY.

- III. Metamorphosis.
  - 1. Eggs.
    - A. Where deposited (Singly or in clusters on plant where larvae feeds)
    - B. Contains what?
      - a. Germ of larva.
      - b. Fluid to nourish germ.
    - C. Period of incubation.
      - a. Warm countries—Not over three weeks.
      - b. Cold climate—Much longer.
        - (a) Sometimes eggs deposited in fall do not hatch till spring.
  - 2. Larvae.
    - A. Length of time—Varies with climate.
      - a. Temperate regions—Three to four months.
      - b. Cold regions—Eight to ten months.
    - B. Caterpillar—Wormlike.
      - a. Characteristic—Great feeder.
      - b. Appearance—Very uncouth.
      - c. Destructiveness—Great.
  - 3. Pupa stage.
    - A. Chrysalis—With hard outer case.
    - B. How supported.
      - a. Many species attach themselves to leaves and hang head downward.
      - b. Others attach themselves at one end or suspend themselves with silk cord.
      - c. State of life.
        - (a) Appearance—Lifeless.
        - (b) Breathing—Through small pores.
      - d. Length of time in chrysalis stage.
        - (a) Some—A few weeks.
        - (b) Others—Continue through winter.

- 4. Image.
    - A. Resemblance to caterpillar for few hours.
    - B. Time of life—A few days.

IV. CHARACTERISTICS.

- 1. Diurnal day flyers.
- 2. Clubbed antennae.
- 3. Admired for beauty.
- 4. Migration.
    - A. Tropical regions—Often moving many miles.
    - B. Smaller species—Zigzag motion, often stopping to rest.
- 5. Male and female—Differ in color and size.
- 6. Purpose—To deposit eggs.

V. FOOD.

- 1. Nectar of flowers.

VI. HABITS.

- 1. Active in warm weather.
- 2. Associated with most beautiful vegetation and natural scenery.

VII. CLASSES (50,000 species in the world).

- 1. Brush-footed butterflies.
- 2. Metal marks.
- 3. Blues, Coppers, and Hair-streaks.
- 4. Swallow-tails.
- 5. Skippers.

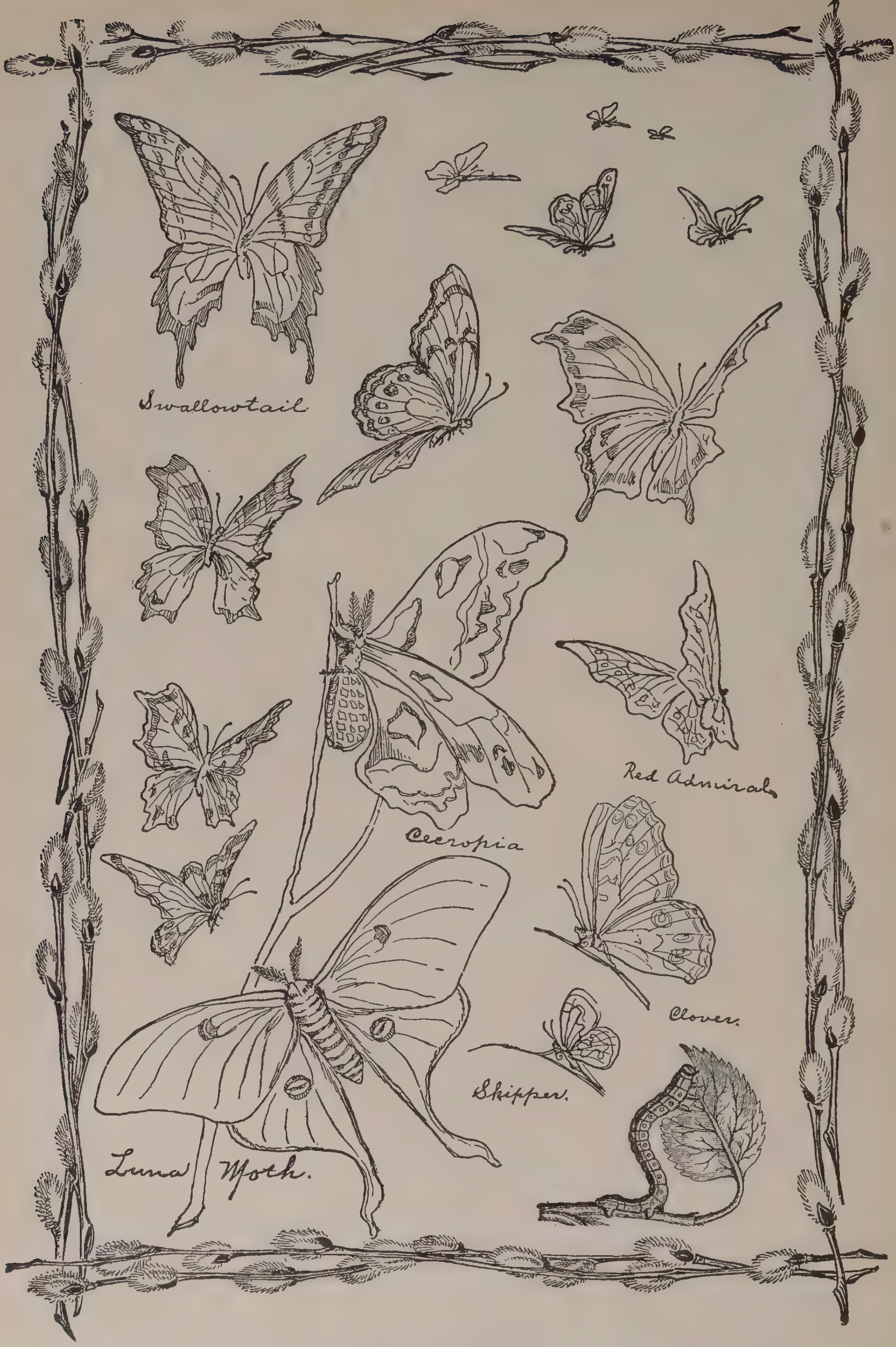
VIII. WHERE FOUND.

1. All parts of the world (As far north as Greenland—as far south as the Antarctic islands).

Memory Gems.

Oh! pleasant, pleasant, were the days,
The times when in our childish plays,
My sister Emmeline and I
Together chased the butterfly!
A very hunter did I rush
Upon the prey; with leaps and springs
I followed on from brake and bush;
But she, God love her! feared to brush
The dust from off its wings.
— *Wordsworth.*

A butterfly basked on a baby's grave,
Where a lily had chanced to grow:
"Why art thou here, with thy gaudy dye,
When she of the blue and sparkling eye,
Must sleep in the churchyard low?"
Then it lightly soared through the sunny air,
And spoke from its shining track:
"I was a worm till I won wings,
And she whom thou mourn'st like a seraph sings:
Wouldst thou call the bless'd one back?"


Swallowtail
Red Admiral
Cecropia
Clover.
Skipper.
Luna Moth.

BLACKBOARD LESSON.

To a Butterfly.

Come to us often, fear no wrong,
Sit near us on the bough,
We'll talk of sunshine and of song,
And summer days when we were young;
Sweet childish days, that were as long
As twenty days are now.

—*Wordsworth.*

The Child and the Butterfly.

"Oh, butterfly, how do you, pray,
Your wings so prettily array?
Where do you find the paints from which
To mix your colors, warm and rich?"

The butterfly, in answer, said:
"The roses lend me pink and red,
The violets their blue,
And every flower its chosen hue.

"My palette is a rose-leaf fair,
My brush is formed of maiden-hair,
And dewdrops shining in the grass
Serve nicely for my looking-glass!"

—*Nixon Waterman.*

Questions on the Butterfly.

How many wings have butterflies? 419.

Into how many stages or periods may the life of a butterfly be divided?

How many months does it live in a wormlike form?

Where does it lay its eggs?

By what agency are the eggs hatched?

How far north are they found?

Do they have feathers?

What can you say about the destructiveness of the caterpillar?

What can you say about the length of life of a full-grown butterfly?

How many species of butterflies are there?

In what countries are butterflies found having wings a foot across?

How do butterflies protect themselves from their enemies?

Give three ways in which to determine the butterfly from the moth.

Name four kinds of moths. 1460.

What species of butterflies move about by twilight?

On what do butterflies feed? 419.

How many eggs will a single butterfly or moth lay? 506.

Which is the greater pest, the butterfly or caterpillar, and why?

How long does it take the caterpillar to turn into a butterfly under favorable conditions?

What are the principal enemies of caterpillars?

Do caterpillars eat flesh?

What can you say of the enormous amount of food consumed by the caterpillar compared to the weight of the larva?

How many legs has the caterpillar which produces butterflies?

How many eyes has a caterpillar?

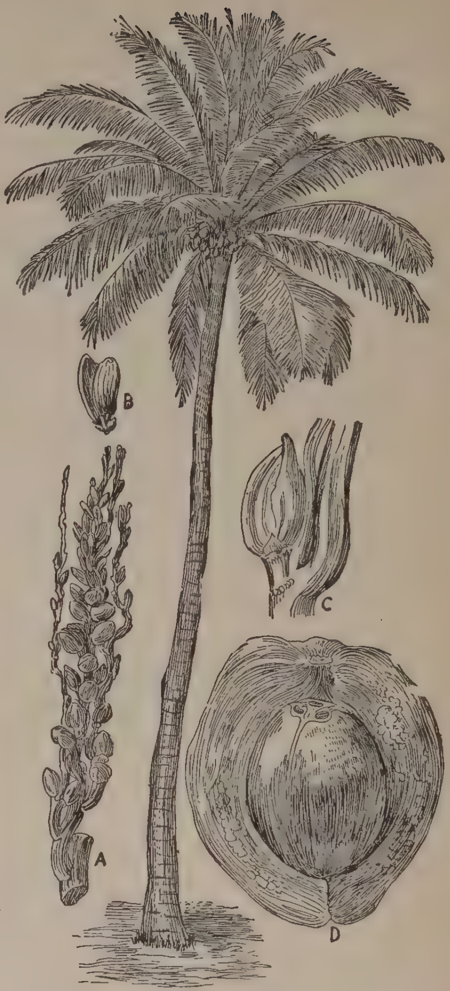
Cocoanut.

I. WHERE FOUND.
  1. Native to Africa, East Indies, West Indies, South America.
  2. Cultivated extensively in tropical regions.

II. DESCRIPTION.
  1. Tree.
    A. Height (Straight naked trunk 40 to 60 ft.).
  2. Leaves.
    A. Featherlike, growing in bunch at summit.
  3. Fruit or nuts.
    A. In clusters of a dozen or more.
    B. Length (3 to 8 inches).
    C. Cover (Fibrous husk).
    D. Inside kernel (Firm, white, fleshy).
    E. Milk (Within kernel, sweet and watery).

III. PRODUCTS OF FRUIT.
  1. Kernel.
    A. Article of food.
    B. Copra. C. Cocoa butter.
  2. Fibrous cover.
    A. Manufacture of yarn, matting, and cordage.
  3. Shells.
    A. Cups and vessels.

IV. PRODUCTS OF TREE.
  1. Wood.
    A. Construction of houses and other building purposes.
  2. Sap.
    A. Arrack. B. Jaggery.
  3. Leaves.
    A. To thatch cottages.



COCOANUT PALM.
A, Branch with flowers. B, male flower; C, female flower, D, fruit with the shell opened.

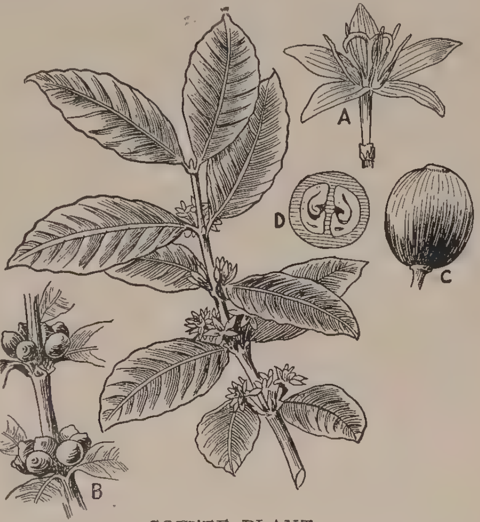
Questions on the Cocoanut.

Of what tree is the cocoanut a fruit and in what countries does it grow? 616
Describe the cocoanut as to size and covering?
What articles of food are manufactured from the cocoanut?
What is copra and how is it made?
What articles are manufactured from the fiber covering of the cocoanut?
What articles are made from the shell of the nut?
What use is made of the wood of the tree?
What can you say of the color, use, and taste of cocoa butter?
Name three products made from the juice of the tree.
What is the height of a cocoanut tree?
How many cocoanuts grow on a tree?
What use is made of the leaves of the cocoanut tree?
What part of the cocoanut tree is used to make writing paper? For making baskets?

What part of the leaf is useful for making boat oars?
What part of the leaves is used for making drums?
What part of the tree is used for medicine? For chewing gum?
How is chocolate made?
What do the ashes of cocoanut leaves yield?
What part of the tree is used for making cradles and clothes?
What part of the tree is used for making baskets and buckets?
What use is made of the terminal bud of the cocoanut tree?

Coffee.

I. Where Found.
  1. Native to Abyssinia and Arabia.
  2. Cultivated—West Indies, Bermuda, Brazil, Ceylon, Mexico, Central America.
II. Description.
  1. Tree.
    A. Wild (15 to 30 ft.).
    B. Cultivated (8 to 10 ft.).
  2. Leaves.
    A. Dark green color.
    B. Waxy appearance.
  3. Flowers.
    A. Color—White.
    B. Where placed.
      (a) Axils of leaves.
  4. Fruit.
    A. Oval, dark red berry resembling cherry.
      (a) Berry contains two cells. The coffee nib of greenish color.



COFFEE PLANT.
A, Flower; B, Fruit Stock; C, Fruit; D, Section of Fruit

III. How Gathered and Prepared for Commerce.
  1. Placing canvas under tree and shaking.
  2. Berries dried in sun.
  3. Passed between rollers which crush pulp.
  4. Pulp removed by winnowing.
  5. Seeds thoroughly dried.
  6. Packed in large sack.
  7. Roasted to produce brown color and caffeine.
IV. Use.
  1. Assists digestion, retards waste, exhilarates spirits.
V. Kinds.
  1. Mocha (Red Sea).
  2. Java.
  3. Jamaica.
  4. Rio (South America).
VI. History.
  1. Unknown to Greeks and Romans.
  2. Dutch first cultivated it.
  3. Seeds brought to Java in 1690.
  4. Brazil and South America in 1774.
VII. Annual Output.
  1. 1,550,000 tons (50 per cent. in Brazil).

VIII. CONSUMPTION PER PERSON PER YEAR.

1. Holland (23 lbs.).
2. Belgium (11 lbs.).
3. United States (10 lbs.).
4. Germany (6 lbs.).
5. France (4 lbs.).
6. Great Britain (1 lb.).

Coffee in Literature.

Coffee, which makes the politician wise,
And see through all things with his half-shut eyes.
—*Pope*

In the late Civil War, the desire of the soldiers upon halting after a wearisome march, was to make a cup of coffee. This was taken without milk, and often without sugar, yet was always welcome.

—*Steele.*

The coffee houses devise and spread abroad divers false, malicious, and scandalous reports to the defamation of his majesty's government, and to the disturbance of the peace and quiet of the nation.

—*From proclamation of Charles II.* (1675).

The Turks have a dish called coffee (for they use no wine), so named from a berry as black as soot and as bitter, which they sip as warm as they can suffer, because they find by experience that that kind of drink so used helps digestion and procures alacrity.

—*Burton.*

Questions on Coffee.

To what countries is coffee native?

What is the height of the coffee tree in its native state? Why is it treated to make it smaller?

Theine in tea is closely identified with what constituent in coffee?

What is caffeine and how is it developed?

Give three points in favor of using coffee as a beverage.

With what is coffee adulterated? How may this be avoided?

Name several kinds of coffee and tell where each is grown.

What is the world's annual output? By which country is half of it produced? 619.

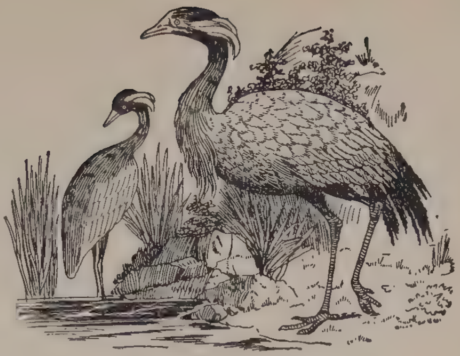
From where do United States and Canada secure their supply?

What is the annual consumption of coffee per person in Holland? In Great Britain?

Through what people was coffee brought to other countries? 619.

Describe the preparation of coffee from the time the berries are ready for gathering until it is in the cups before you on the dining table.

Crane.



CROWNED CRANE.

I. Genus—Grus.
II. Specie—Wader.
III. Migration—Winter bird of passage.
IV. Description.
  1. Size—About four feet high; 45 in. long.
  2. Color—Ash gray, or bluish white.
  3. Head—More or less naked.
  4. Neck—Long, arched.
  5. Windpipe—Perfectly straight at birth, coiled and from 3 ft. to 5 ft. long in adults.
  6. Bill—Short, compressed, and used as means of defense.
  7. Wings—Short, rounded, and powerful.
  8. Legs—Long and slender.
  9. Feet—Unwebbed; hind toe greatly elevated.
V. Food.
  1. Worms. 4. Seeds.
  2. Insects. 5. Snakes.
  3. Roots. 6. Small quadrupeds.
VI. Nests.
  1. A. On the ground, or in low bushes. B. Marshes.
  2. Eggs—Two.
VII. Classification and Homes.
  1. Crowned—Northern and Western Africa.
  2. Demoiselle—Central Asia and Africa (so called from elegance of its form).
  3. Whooping—North America (extensive trachea, producing resonant sounds with its voice).
  4. Sand-hill—North America. 5. Sacred (Japan and India).
  6. Crowned—Northern Africa.
VIII. Habits.
  1. Travel by night. 2. Alight for food in daytime.
  3. Fly in wedge-shaped flocks, or in single lines.
  4. Have single leader. 5. Travel at great speed.
IX. Use.
  1. Food. 3. Pets.
  2. Plumage. 4. Exhibition.
X. Characteristics.
  1. Dances (During courtship). 2. Antics.
  3. Display of feathers (Like peacock). 4. Docility.
  5. Whooping.

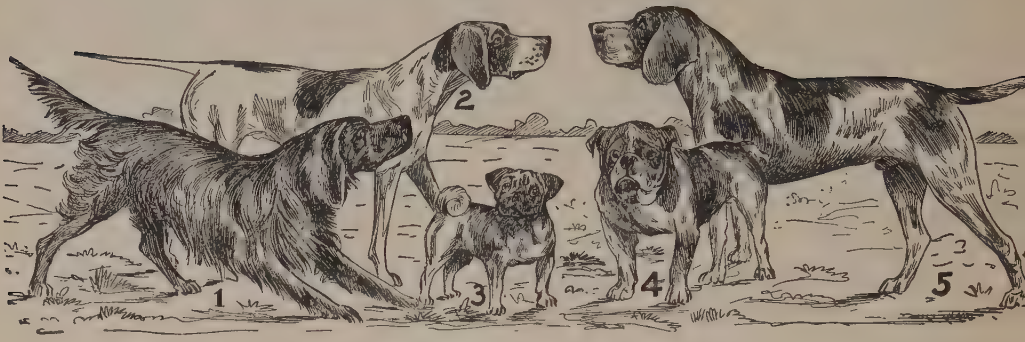
Questions on the Crane.

In what respects do cranes differ from storks and herons? 696.
Name several classes of cranes.
Why is the demoiselle crane so called?
What peculiarity is there about the trachea of the whooping crane?
Where is most of their food obtained?
How are they adapted for life in the lowlands?
When do they migrate? Mention some uses of cranes.
At what time do these birds perform peculiar antics?
In what countries are they held sacred?
What is their means of defense?
Which species are best known in United States?
In what respect are they like peacocks?
Describe the crowned crane and note the peculiarity about the head.

Dog.

I. Origin and Family.

1. Genus—Canis.
2. Related animals—Fox, jackal, and wolf.
3. Possible origin—From the wolf.



FAMILIAR BREEDS OF DOGS.
1, Setter; 2, Pointer; 3, Pug; 4, Bulldog; 5, German Boarhound.

II. History and Antiquity.

1. Mentioned in the books of Moses and the writings of Homer.
2. Carved on an Assyrian monument.
3. Represented in Egyptian sculptures.
4. Used in sacrifice to deities by Romans, Greeks, and Celts.
5. Employed as executioners.

III. Description.

1. Size—Varies.
2. Color—Nearly all colors.
3. Structure—Varies greatly.
4. Hair—Straight, curly, or shaggy.
5. Voice and habits—Differ widely.
6. Intelligence and friendship—The truest animal friend to man.
7. Sense of smell—Often very acute.

IV. Uses to Mankind.

1. Aids in subduing other animals.
2. Assists in hunting.
3. Protects human life and property against enemies.
4. Saves life at sea and in storms.
5. Tracks criminals.
6. Acts as guard and carries dispatches for armies.
7. Serves many conveniences in society.
8. Is used for food—By Indians and Eskimos.
9. Runs errands and carries parcels.
10. Is employed in herding stock.
11. Is used as a beast of burden, principally by the Eskimos.
12. Used in shows for performing animals.
13. Employed by the police to capture other dogs and criminals.
14. Hide is used for making leather and furs.

V. Characteristics.

1. Born with eyes closed (Attains sight in eight to twelve days).
2. Maturity reached at about two years.
3. Average life (10 to 12 years).

VI. CLASSIFICATION.

1. Wolf dogs.
    - A. Saint Bernard.
    - B. Eskimo.
    - C. Spitz.
    - D. Newfoundland.
    - E. Shepherd.
    - F. Scotch Collie.
    - G. Welsh.
    - H. Schipperke.
    - I. German Police.
    - J. Siberian.
2. Greyhounds.
    - A. Irish hound.
    - B. Greyhound.
    - C. Brinjaree dog.
    - D. Lurcher.
    - E. Egyptian street dog.
    - F. Scotch.
    - G. Italian.
    - H. Turkish.
    - I. Russian.
3. Watch dogs.
    - A. Danish dog.
    - B. German boarhound.
    - C. Matin, or Indian, dog.
    - D. Arabian boarhound.
    - E. Shepherd dog.
4. Hounds.
    - A. Old Southern hound.
    - B. Staghound.
    - C. Bloodhound.
        - a. English.
        - b. Cuban.
        - c. Russian.
    - D. Harrier.
    - E. Pointer.
    - F. Foxhound.
    - G. Setter.
        - a. Irish.
        - b. English.
        - c. Scotch or Gordon.
        - d. Russian.
    - H. Blenheim.
    - I. Beagle.
    - J. Springer.
    - K. Cocker.
    - L. Poodle dog.
    - M. Hound.
    - N. Spaniel.
        - a. Lamb spaniel.
        - b. Water spaniel.
        - c. Toy spaniel.
        - d. Maltese spaniel.
        - e. Blenheim spaniel.
        - f. King Charles' dogs.
        - g. Cocker spaniel.
        - h. Mexican water spaniel.
5. Cur dogs.
    - A. Fox terrier.
    - B. Terrier.
        - a. Scotch.
        - b. Bull.
        - c. Welsh.
        - d. Irish.
        - e. Skye.
        - f. Boston.
        - g. Clydesdale.
        - h. Yorkshire.
        - i. Maltese.
        - j. Dandie Dinmont.
6. Mastiffs.
    - A. Bulldog.
    - B. Pug dog.
        - a. India pug.
        - b. Holland pug.
7. Unclassified.
    - A. Wild dogs.
        - a. Dingo.
        - b. Dhole.

Questions on the Dog.

Are wild dogs and domestic dogs of the same species? 810.
In what books do we find the first mention of dogs?
What other animals belong to the dog family?
Do naturalists agree upon the origin of dogs?
In what country is there a species of dogs found which have no hair?

In what countries have dogs been sacrificed to certain deities?

In what countries are dogs used for beasts of burden?

What use is made of dogs in the European armies?

Are dogs regarded as personal property?

Tell why the dog is the best friend of man of all animals.

How old do dogs live to be?

What kind of a dog would you select to catch a criminal? Why?

What breed of dogs can run the fastest?

Tell the story of Robert Bruce's escape from bloodhounds.

Name five ways in which dogs are useful to man.

Will a dog give his life for his master?

How old is a puppy before it opens its eyes?

What articles are made from the hide of dogs?

Describe the Eskimo dog. How far can a team pull a sledge in a day?

Tell what you can about the practice of bull baiting and the bulldog in former times in England.

Name three of the best known species of bloodhounds. Describe their ears and lips.

Where did the pug dog originate?

What is the favorite dog of Scotland?

Tell how the staghound differs from the greyhound.

Name five kinds of hounds and tell what each is noted for.

What breed of dogs is the most useful on the farm? Why? 2811.

Of what special use is the terrier? 2848

The Dog in Literature.

Every dog must have his day.
—*Swift.*

His faithful dog shall bear him company
—*Pope.*

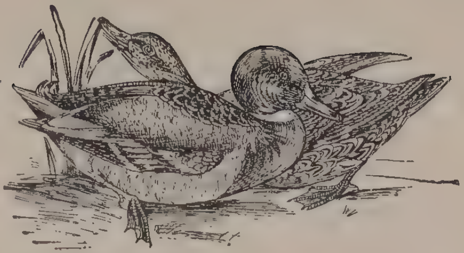
With eye upraised, his master's looks to scan,
The joy, the solace, and the aid of man;
The rich man's guardian, and the poor man's friend,
The only creature faithful to the end.
—*Crabbe.*

Ay, in the catalogue ye go for men;
As hounds, and greyhounds, mongrels, spaniels, curs,
Sloughs, water-rugs, and demi-wolves, are 'clept
All by the name of dogs: the valued file
Distinguishes the swift, the slow, the subtle,
The housekeeper, the hunter, every one
According to the gift which bounteous nature
Hath in him closed.
—*Shakespeare*

Duck.

I. LAMELLIROSTRES.
  1. Anatidae.

II. DESCRIPTION.
  1. Bills (Broad, flat, and serrated; covered with a tender sensitive covering).
  2. Legs—Short.
  3. Feet—Webbed.
  4. Excellent swimmers.
  5. Good divers.
  6. Mostly strong on wing.



MALLARD DUCK—MALE AND FEMALE.

III. CLASSES.
  1. Wild.
    A. Mallard.
      a. Found in North America (A fine game bird).
      b. Color.
        (a) Male—Head, bluish-green; neck, chestnut colored with ring of white; body, various light, blue, and greenish shades; tail feathers, curved.
        (b) Female—Grayish color.
      c. Original of tame duck.
    B. Canvasback.
      a. Native of North America (Along estuaries and inland waters).
      b. Length (20 in.).
      c. Color.
        (a) Male—Head, reddish; bill, black; back and sides, grayish with lines like coarse canvas.
        (b) Female—Smaller and grayish.
      d. Migratory—Moving northward in March.
      e. Prized for fiesh.
    C. Shoveler.
      a. Bill—Shovel shaped.
      b. Color.
        (a) Male—Finely decorated; breast, white; head and tail coverts, greenish.
        (b) Female—Dull plumage.
      c. Valued for flesh.
    D. Galwall, or Gray, duck.
      a. Found in northern part of both hemispheres, in fresh water.
      b. Color—Black and white.
      c. Flesh—Prized for food.
      d. Migratory—Moving south in winter.
    E. Eider Duck.
      a. Found on rocky shores of America and Europe.
      b. Color.
        (a) Male—Black and white spotted.
        (b) Female—Reddish drab, mixed with black and white bands on wings.
      c. Food—Insects, shellfish, small fish.
      d. Down from breast of female used for commerce.
      e. Eggs gathered for market.

- F. Wood Duck.
    - a. Remarkable for beauty.
    - b. Migration.
- G. Pintail.
    - a. Domesticated.
        - (a) Normandy.
        - (b) Picardy.
        - (c) Aylesbury.
        - (d) Musk duck—Largest of ducks.

IV. HABITS.

- 1. Migration (Most species breed in higher latitudes).
- 2. Nest (Where built).
    - A. Generally among reeds near fresh water.
    - B. Sometimes in hollows of trees or crevices of rocks.
- 3. Eggs (Number 6 to 12).

V. CHARACTERISTICS.

- 1. Walking—Awkward, with waddling motion.
- 2. Flight—Brisk.
- 3. Swimming—Ability highly developed.
- 4. Plumage.
    - A. Marked difference between male and female.
    - B. Male has four curved tail feathers.
- 5. Voice of male—Low and basslike.

VI. FOOD.

- 1. Animal.
- 2. Vegetable.

VII. USE.

- 1. Food.
- 2. Feathers.
- 3. Down.

Ode to a Water Fowl.

Whither ’midst falling dew,
While glow the heavens with the last steps of day,
Far, through their rosy depths, dost thou pursue
Thy solitary way?

Vainly the fowler’s eye
Might mark thy distant flight to do thee wrong,
As, darkly painted on the crimson sky,
Thy figure floats along.

Seek’st thou the plashy brink
Of weedy lake, or marge of river wide,
Or where the rocky billows rise and sink
On the chafed ocean side?

There is a power whose care
Teaches the way along that pathless coast,
The desert and illimitable air,
Lone wandering, but not lost.

All day thy wings have fanned,
At that far height, the cold, thin atmosphere,
Yet stoop not, weary, to the welcome land,
Though the dark night is near.

And soon that toil shall end.
Soon shalt thou find a summer home, and rest,
And scream among thy fellows; reeds shall bend.
Soon o’er thy sheltered nest.

Thou’rt gone; the abyss of heaven
Hath swallowed up thy form; yet, on my heart,
Deeply has sunk the lesson thou hast given,
And shall not soon depart.

He, who, from zone to zone,
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

—*William Cullen Bryant*

The Impervious Duck.

"How hoarse you are!" the wild Duck said,
"You've got your feet wet in the channel;
You're only fit to go to bed
And have your throat wrapp'd up in flannel."

"Tut, tut!" replied the Drake; "in truth
There's no occasion for these qualms, dear:
The Corncraik's hoarser far; in youth
He spoilt his voice with singing psalms, dear."

"That's more than ever you did," cried
The angry Duck; "it's most provoking
To such a creature to be tied;
I know your feet are simply soaking."

The season'd Mallard sorry laid
His bill among his shoulder-feathers,
Serenely shut his eyes and paid
No more attention to her blethers.

—*Henry Johnstone.*

Memory Gem.

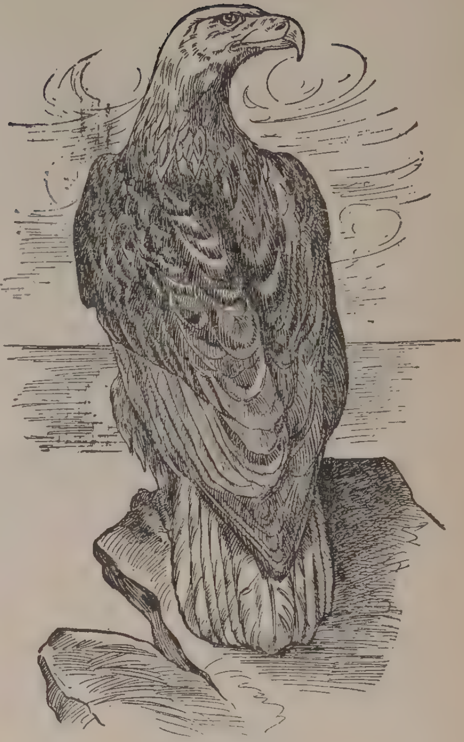
And this our life, exempt from public haunt, finds tongues in trees, books in running brooks, sermons in stones, and good in everything. —*Shakespeare.*

Test Questions on the Duck.

How many eggs do ducks lay?
Where do they lay their eggs?
What is the most common duck of Central North America?
Describe the mallard duck. 837.
From what kind of wild species have most of our domestic ducks been developed?
Which is the most valuable as food, duck eggs or hen eggs?
What is the largest species of the duck family?
Of what continent is the musk duck a native?
What can you say of the flesh of ducks as food?
What can you say of the migration of ducks?
Which lays the most eggs in a year, a duck or a hen?
What is the distinction in plumage in male and female?
Why is the pintail duck so called?
What can you say about the regularity of size and shape of duck bills?
How can you tell a male from a female duck without seeing them?
Is the duckbill a duck? 837.
Give three important uses of the duck.

Eagle.

- I. Genus—Aquila.
  - 1. Family—Falconidae.
    - A. Eagles.
    - B. Hawks.
    - C. Falcons.
- II. Classes.
  - 1. Golden Eagle.
    - A. Dark brown—Tawny color.
    - B. Yellowish tinge on back of head and neck.
    - C. Length.
      - a. 3 ft. from beak to end of tail.
      - b. 6 ft. expanded wings.
    - D. Food.
      - a. Poultry.
      - b. Rabbits.
      - c. Small quadrupeds.
    - E. Where found.
      - a. Eurasia.
      - b. North America.
  - 2. Sea Eagle.
    - A. Grayish brown color.
    - B. White tail.
    - C. Pale colored head.
    - D. Food—Fish and marine animals.
    - E. Where found.
      - a. Coasts of lakes and seas.


BALD EAGLE.

  - 3. Bald Eagle.
    - A. Color—Brown.
    - B. Neck, head, and tail white (After three years).
    - C. Great cowards and thieves.
    - D. Nest.
      - a. Tall tree.
      - b. Consists of sticks, sod, grass.
      - c. Nest added to year by year.
    - E. Food—Fish.
    - F. Where found.
      - a. America and Northern Eurasia.
  - 4. Serpent Eagle.
    - A. Southern Asia and Northern Africa.
  - 5. Harpy Eagle.
    - A. Larger than golden eagle.
    - B. Bill—Crooked.
    - C. Claws—Strong and sharp.
    - D. Color—Dark gray, barred with black above.
    - E. Breast—White.
    - F. Head bears handsome crest.
    - G. Feathers used by Indian for decorations.
    - H. Found in tropics.
  - 6. Lammergeier.
    - A. Length—Four feet.
    - B. Wing expansion—9 ft. to 12 ft.

C. Food.
    a. Carrion.
    b. Living prey—Kids, lambs, chamois, and hares.
    c. Where found.
        Southern part of Europe and Asia.
        Northern part of Africa.

7. Other species.
    a. Imperial. b. Eagle hawk. c. Crested eagle.

III. History.

1. Symbol of Persians 401 B. C.
2. War standard to Egyptians.
3. Romans 104 B. C. (Military standard).
4. Napoleon adopted eagle as symbol of France.
5. Double-headed eagle, emblem of Russia.
6. Introduction into Germany by Charlemagne.
7. Prussian Order of Black Eagle. 1701.
8. Standard of Austria.
9. Symbol of United States, representing fortitude, power, courage, nobility.

The Bald Eagle.

High soars a patriarchal oak,
Its umbrage scath'd by lightning-stroke,
Upon whose topmost bough doth dwell
An eagle, monarch of the dell,
O'erlooking from his eyrie grand,
The wide expanse of forest land;
Now rising high in air to sweep
In circling rings the upper deep,
Now pois'd and balanc'd in mid-space,
As resting on his airy chase;
Now sweeping downward on its way
As pirate bark sweeps on its prey.

—*Isaac McLellan.*

Questions on the Eagle.

What bird soars the highest in flight? 852.

Where is the golden eagle found? Describe it.

In what countries is the bald eagle found?

Do eagles eat carrion?

What can you say about the eagle as a symbol of societies and nations?

When and by whom was the eagle adopted as the symbol for France?

Who introduced the eagle in Germany as the standard?

How many orders of societies of eagles are there in Germany?

Describe the Prussian Order of the Black Eagle. 853.

When did France abolish the eagle as a symbol?

What bird is regarded as the most noble and courageous of the birds of prey?

Describe the sea eagle.

Where is the harpy eagle found? Where does it live and upon what does it feed? 1256.

What use did the Indian make of its feathers?

Will they attack a human being?

For what does the eagle stand?

How did the ancient Prussians regard the eagle?

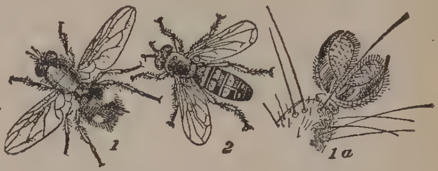
What was the custom among the Romans in regard to the eagles of silver and gold?

What is the value of the gold eagle of the United States?

When coined and what is the weight?

Fly.

I. Diptera (Two winged).
II. Species (Over 40,000).
III. Description.
1. Wings—One pair present; second pair reduced to threadlike appendages (Balancers).
2. Head—Small.
3. Mouth parts—Adapted for piercing and sucking.
4. Eyes—Very large and compound, sometimes containing as many as 4,000 single eyes.
5. Feet—Delicate pads for climbing upon smooth surfaces.
IV. Metamorphosis.
1. Eggs.
A. Deposited in refuse.
B. Hatched in one day.
2. Larvae (Maggots)—Active scavengers.
3. Pupa stage (14 days).
4. Rapidity of increase exceedingly great.



1, MUSCID; 2, SYRPHUS; 1a, FLY'S FOOT.

V. Characteristics.
1. Skill in walking—Able to walk on smooth surface and with back downward.
A. How—
a. By hairlike cushion.
b. Partly by glutinous fluid secretion.
c. Partly by removing air from feet by suckers.
VI. Food.
1. Sweet juices.
2. Decayed matter and offal.
VII. Harmfulness.
1. Annoyance—Great, both to animals and human beings.
2. Breeders of disease—By carrying germs of decaying matter and depositing on food.
VIII. When Most Prevalent.
1. In tropics—The entire year.
2. In Temperate Zone—In the warm season.

Test Questions on the Fly.

About how many thousand species of the fly have been described? 1023.

How long does it take a fly's egg to hatch?

How long do the young remain in the larval stage?

How do the flies walk on the ceiling?

What is the use of flies?

Where in the United States have 1,500 species of flies been found, in fossil and shale beds?

Do we have a drone fly?

Describe the under lip of a fly. What is its use?

Describe the habits of the fly catcher.

How does the fly balance itself?

Grapes.

I. GENUS—Vitis (A climbing vine).
II. DESCRIPTION.
  1. Stem—Woody and supported by strong tendrils.
  2. Bark—Dark brown like that of a tree.
  3. Leaves—Large, broad, deeply three lobed, and hairy.
  4. Blossoms—Small and of a greenish color.
  5. Fruit.
    A. Shape—Round or spherical and grows in clusters.
    B. Size—One-fourth to one inch in diameter.
    C. Color—Green, yellow, red, purple, or variegated.
    D. Interior—Soft pulp, containing two to five seeds.
    E. Outer skin—Tough and indigestible, but contains acid which develops flavor in cooking.
III. KINDS.
  1. Wild (500 species indigenous to North America).
  2. Cultivated.
    A. Popular species.
      a. Concord.
      b. Catawba.
      c. Niagara.
      d. Clinton.
      e. White Frontignan
      f. Madeira.
      g. Black Prince.
IV. HOW PROPAGATED.
  A. Inoculation (Budding).
  B. Cuttings.
  C. Grafting.
  D. Seeds.
V. CULTIVATION.
  1. Rows—About 10 ft. apart.
  2. Ground—Cultivated in other crops for a couple of years and subject to clean culture.
  3. Support, for vines—Trellises.
  4. Trimming—Necessary to secure a large yield.
  5. Where cultivated.
    A. Warm or Temperate zones.
    B. Countries.
      a. Western Asia.
      b. Southern Europe.
      c. United States—New Jersey, Delaware, New York, Ohio, Illinois, and California.
      d. Southern part of Canada.
VI. USE.
  1. Raisins.
  2. Wine.
  3. Table use.
VII. HISTORY.
  1. Time—Immemorable.
  2. Introduced into Europe by the Phoenicians.
  3. Grape culture in California—Begun by Spanish missionaries in 1771.

The Grape-Vine Swing.

Lithe and long as the serpent train,
  Springing and clinging from tree to tree,
Now darting upward, now down again,
  With a twist and a twirl that are strange to see;
Never took serpent a deadlier hold,
  Never the cougar a wilder spring,
Strangling the oak with the boa's fold,
  Spanning the beech with the condor's wing.

Yet no foe that we fear to seek—
  The boy leaps wild to thy rude embrace;
Thy bulging arms bear as soft a cheek
  As ever on lover's breast found place;
On thy waving train is a playful hold
  Thou shalt never to lighter grasp persuade;
While a maiden sits in thy drooping fold,
  And swings and sings in the noonday shade!

O giant strange of our southern woods,
  I dream of thee still in the well-known spot,
Though our vessel strains o'er the ocean floods,
  And the northern forest beholds thee not;
I think of thee still with a sweet regret,
  As the cordage yields to my playful grasp,—
Dost thou spring and cling in our woodlands yet?
  Does the maiden still swing in thy giant clasp?

—*Simms.*

Questions on Grapes.

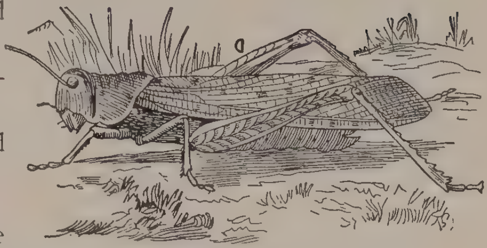
Of what region are the best fruit-bearing grapes supposed to be native?
What people introduced the grape into Europe from Asia? 1181.
When was the grape first introduced into America?
Give four ways in which the grape plant may be propagated.
What is the greatest wine-producing State in the Union?
How many species of grapes are indigenous to North America?
Tell how grapes are cultured and propagated.
Name five of the best kinds of market grapes.
What can you say of the wild grape as to qualities and distribution?
Do we have seedless grapes?
What nations lead in the production of wine?
What country is noted for its production of the large species of grapes?
How many times a year does the grape bear in warmer climates?
What kind of grapes is used in making sweet wine?
What State produces the best grade of wine? 3162.
How is white wine made? Why is it white?
About what per cent. of grapes does the juice equal of the entire weight? 3162.
Explain how cream of tartar is made from the grape. 699.
Tell how the raisin is made from the grape. What State leads in the production of raisins?
What countries produce large quantities of raisins? 2370.
What can you say of the vineyards of Ontario? 2038.

Grasshopper.

I. ORTHOPTERA (Straight winged).

II. DESCRIPTION.

1. Body—Compressed.
2. Wings—Four in number, folded like sides of a roof.
   - A. First pair thickened, overlapping second pair.
   - B. Second pair thin and folded like a fan.
3. Legs—Long and slender.
   - A. Thighs of hinder legs large and adapted for leaping.
4. Antennae—Long and threadlike.



ADULT CRASSHOPPER.

III. HABITS.

1. Often fly in swarms, forming black clouds.
2. Destruction—Often great, especially to growing crops in arid regions.
3. Sound.
   - A. Very characteristic, caused by rubbing wings and wing covers together during flight.
   - B. Also by rubbing the serrated hind legs against the wing covers.
4. Young—Go through stage of metamorphosis.

IV. FOOD.

1. Vegetation.
2. Insects.

Questions on Grasshoppers and Locusts.

Describe the grasshopper. 1182.

To what other insects are they closely related?

How do they produce their peculiar sound?

Where does the grasshopper deposit its eggs?

In what states have they been so numerous at times as to obscure the sun? 1615.

When are their eggs laid and when do they hatch?

Describe the locust. 1615.

What can you say about their destruction of vegetable growth?

By what people is the locust used as food?

What measures are taken to prevent the advance of locusts in the destruction of crops?

When are locusts the most destructive to crops?

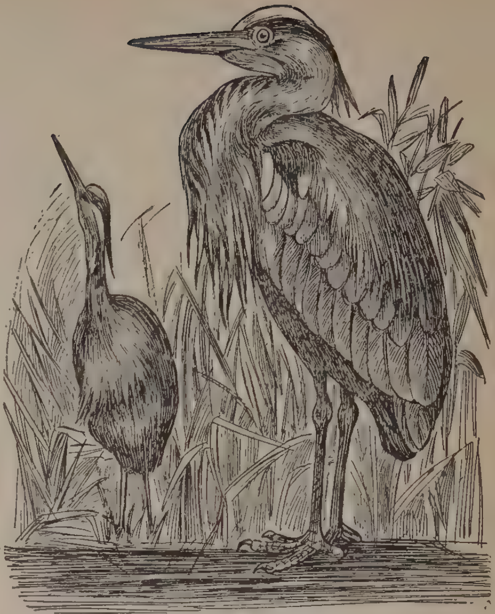
In what states are locusts the most abundant?

In what way do they interfere with railroad traffic?

Which jumps the farthest, the grasshopper or locust?

How many particular species of locusts are found in North America?

Heron.



GREY (BLUE) HERON.

I. Family—Ardeidae.
  1. Genus—Ardea.

II. Description.
  1. Bill—Sharp, straight, and longer than head and cleft between eyes.
  2. Legs and neck—Long, adapted for wading.
  3. Body—Slender and compressed.
  4. Toes—Three in front, two outer united by membrane.
  5. Wings—Very long.
  6. Tail—Short, round, and compressed.
  7. Ornamented crests and handsome plumes on throat and body.
  8. Movements.
    A. Graceful and elegant on land.
    B. Awkward in flight because of long legs stretched out behind.

III. Classes.
  1. Great blue heron (Native of North America).
    A. Color—Grayish-blue, black quill feathers.
  2. Green heron (North America).
  3. Snowy heron (Gulf of Mexico).
    A. Pure white plumage.
    B. Black legs and bill.

IV. Haunts—Ponds, marshes, fresh-water streams, lakes, seacoast.

V. Food.
  1. Secured by wading (Often standing motionless in the water waiting for fish).
  2. Insects, frogs, fish, rats, mice, young of birds, mollusks.

VI. Nest.
  1. Built in trees.   2. Others in bushes.   3. Eggs three to four.

The Heron in Poetry.

Oh! give me back my thicket by the marsh!
  Let me see the herons wade
  In the watery glade,
And let me see the water-fowl go by
Glimmering against the sky.
—*Maurice Thompson.*

The heron builds her nest in the tall pine,
  That rises high, a watch-tower in the land,—
The while her mate, by stream or crystal pool,
  Stands, mute and listening, warder of the strand.
—*Ella F. Mosby.*

Far up some brook's still course, whose current mines
The forest's blackened roots, and whose green marge
Is seldom visited by human foot,
The lonely heron sits, and harshly breaks
The Sabbath silence of the wilderness;
And you may find her by some reedy pool,
Or brooding gloomily on the time-stained rock
Beside some misty and far-reaching lake.

Questions on the Heron.

What other birds are related to the heron? 1294.
Name three kinds of herons native to North America.
Where does it build its nest?
How many eggs does it lay?
Upon what does the heron feed? 1295.
Of what value is the heron?
What is the height of the heron?
Describe the bill and plumage.
Which is the taller, a flamingo or heron? 1010.
Compare the heron with the spoonbill. 2714.
Where is the egret found and for what is it noted? 881.
Describe the snowy egret. For what is it hunted very extensively?

Grotesque and tall, he stands erect
  Where the reed-riffle swirls and gleams—
Grave, melancholy, circumspect,
  A hermit of the streams.

—*Ernest M'Gaffey.*

The Brooding Season.

Soft sits his brooding mate, her guardian he,
Perch'd on the top of some tall, neighboring tree;
Thence, from the thicket to the concave skies,
His watchful eye around unceasing flies.

—*Alexander Wilson.*

The Great Blue Heron.

I saw him flit across the leaden west,
Slow flap his way, poise high the wings of slate,
The trailing feet upon an oak's dead crest
To anchor drop, a migrant ship of state.

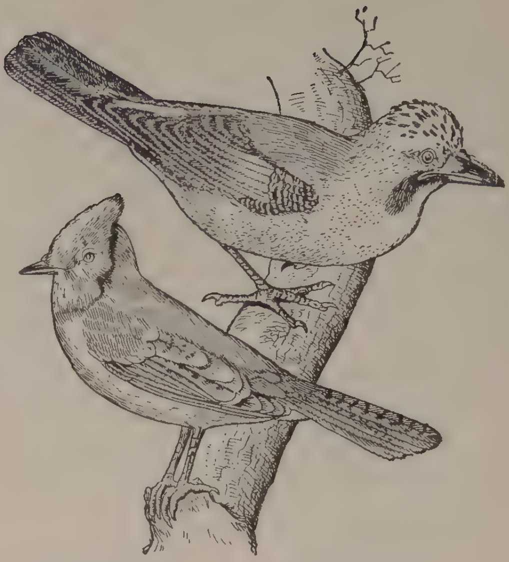
I saw him next among his bayous bleak,
Slim, sombre, mute, and grim, with listless wing;
With yet a fierce reserve of eye, a beak
The shafted lightning, egret crowned, a king.

I saw him last where palms their plumes upreared,
The mystic ibis of my lady's bower,
An alien, stark, majestic still, a weird
Gray ghost of decorative grace and power.

—*J. Vallance Brown.*

Jay.

I. ORDER—Passeres.
    1. Family—Corvidae.
II. DESCRIPTION.
    1. Feet—Adapted for perching.
    2. Bill—Rather short and sharp.
    3. Wings—Blue or brownish red color.
        A. Considerably shorter than tail.
    4. Tail—Very long and rounded, sometimes longer than body.
    5. Head—Tuft on top.
III. SPECIES (About 20).
    1. Blue Jay.
        A. Best known and handsomest.
        B. Voice.
            a. Harsh and grating.
            b. Great power of imitating other birds.
        C. Motion—Fantastic.
        D. Plumage—Bright blue, black, and white.
        E. Nest.
            a. Trees.
            b. Formed of twigs lined with grass.
            c. Eggs—Four or five, olive-brown, dark spotted.
    2. Canada Jay.
        A. Coloring—Somber.
        B. Bold, noisy, active.
        C. Friend of moose, hanging from its horns in search of parasites.
        D. Northern part of North America.
    3. English Jay.
        A. Larger than blue jay.
        B. Color—Light brown, inclining to red.
    4. European Jay.
        A. Color—Cinnamon, varied with white, black, and blue.
IV. WHERE FOUND.
    1. Both hemispheres.
V. FOOD.
    1. Insects, seeds, fruits.
    2. Eggs and young birds.



BLUE JAY. EUROPEAN JAY.

The Canada Jay.

With mingled sound of horns and bells,
  A far-heard clang, the wild geese fly,
Storm-sent from Arctic moors and fells,
  Like a great arrow through the sky,
Two dusky lines converge in one,
Chasing the southward-flying sun;
While the brave snow-bird and the hardy jay
Call to them from the pines, as if to bid them stay.
—*John G. Whittier.*

The Jay in Literature.

What, is the jay more precious than the lark,
Because his feathers are more beautiful?
Or is the adder better than the eel,
Because his painted skin contents the eye?
—*Shakespeare.*

Ten thousand warblers cheer the day, and one
The live-long night: nor these alone the notes
Nice-fingered art must emulate in vain,
But cawing rooks, and kites that swim sublime
In still repeated circles, screaming loud,
The jay, the pie, and ev'n the boding owl
That hails the rising moon, have charms for me.
—*Cowper.*

The jay is a jovial bird—Heigh-ho!
  He chatters all day
  In a frolicsome way
With the murmuring breezes that blow—
    Heigh-ho!

  Hear him noisily call
  From the redwood tree tall
To his mate in the opposite tree—Heigh-ho!
  Saying, "How do you do?"
  As his topknot of blue
Is raised as polite as can be—Heigh-ho!

  Oh, impudent jay,
  With your plumage so gay,
And your manners so jaunty and free—
    Heigh-ho!
  How little you guessed,
  When you robbed the wren's nest,
That any stray fellow would see—Heigh-ho!
—*Selected.*

Questions on the Jay.

To what family of birds does the jay belong? 1445.
Give three ways in which a jay bird may be distinguished from the crow.
About how many species of the jay bird are known?
Describe the head and wings.
Of what countries are the different species native?
Name five kinds of food upon which the jay bird feeds.
Compare the English jay with the American blue jay as to color and size.
What can you say about the voice and its cultivation when tamed?
How does the length of the tail compare with the length of the body?

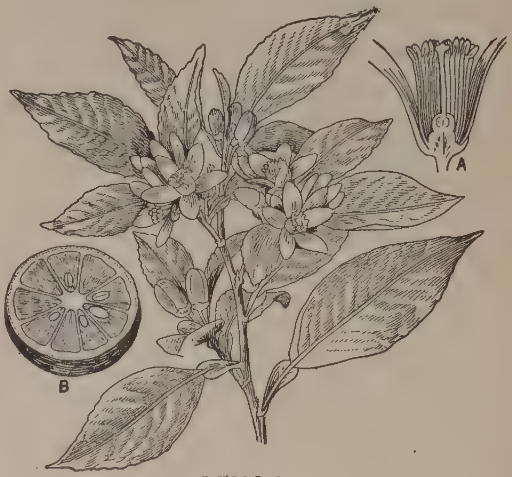
Lemon.

I. Citrus Medica (Orange Family).

II. Description.
- 1. Tree—Knotty wooded, about eight feet in height.
- 2. Leaves—Oval, containing oil used in making extracts.
- 3. Fruit.
    - A. Shape—Ellipsoidal, with protruding point at each end.
    - B. Length—2 in. to 4 in.
    - C. Color—Bright yellow.
    - D. Skin—Quite thick.
    - E. Internal pulp—Acid and juicy.
    - F. Number of compartments—8 to 12, each containing several seeds.
    - G. Number on tree — 3,000 or more.

III. How Gathered.
- A. Picked while green.
- B. Wrapped in small papers.
- C. Shipped in boxes.
- D. Ripened during transit.

IV. Kinds.
- 1. Sweet lemon.
- 2. Thick-skinned lemon.
- 3. Common lemon.
- 4. Citron lemon.



LEMON.
A, Flower; *B*, Section of Fruit.

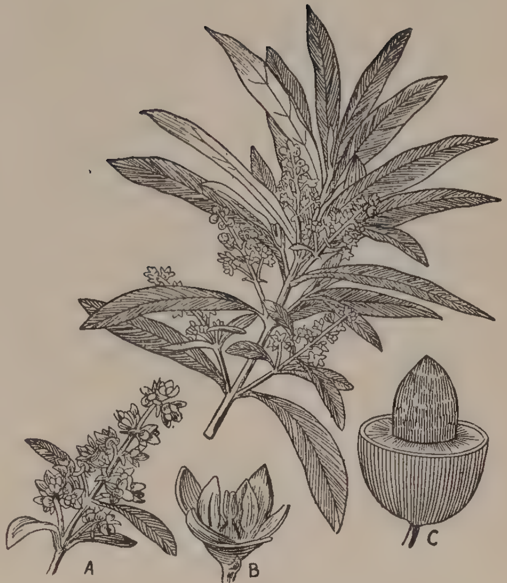
V. Uses.
- 1. Oil of lemon—Volatile substance secured from rind pressure.
- 2. Extract—Made from imperfect fruit by squeezing.
- 3. Lemonade.
- 4. Stimulant in medicine.
- 5. Perfumery.

VI. Where Grown.
- 1. United States—California and Florida.
- 2. Southern Europe.
- 3. Australia.

Questions on the Lemon.

Which are the more profitable to grow, oranges or lemons?
What is the height of a lemon tree? 1568.
How many lemons will a tree produce in favorable seasons?
Name four kinds of lemons.
How is the oil of lemon manufactured?
How is lemon extract made? For what is it used?
What states in the United States produce the largest quantities of lemons?
When was lemon cultivation introduced in Australia?
What can you say of the keeping properties of the lemon?
Were lemons known to the ancient Greeks and Romans?
Name six uses of the lemon.
Name two islands in the Mediterranean sea that are noted for their production of lemons.
Who introduced the cultivation of lemons in Spain and at what date?
How have lemons been improved?
What can you say of the wood of the lemon tree?
What is the shape of the leaves?

Olive.



OLIVE.
A, Cluster of flowers; B, Single flower; C, Fruit.

- I. Description.
  - 1. Tree.
    - A. Evergreen.
    - B. Height (15 ft. to 30 ft.).
    - C. Growth—Very slow, but hardy and long lived.
    - D. Trunk—As it grows old, becomes gnarled, broken, and twisted.
  - 2. Leaves.
    - A. Shape — Lanceolate or oblong.
    - B. Surface.
      - a. Smooth above and horny beneath.
    - C. Color — Bluish or dusky green.
  - 3. Flowers.
    - A. Size—Small, growing in terminal racemes or clusters.
    - B. Color—Whitish, appearing in June, July, and August.
  - 4. Fruit.
    - A. Shape—Oblong, spheroidal.
    - B. Skin—Smooth and thin.
    - C. Stone—Hard.
    - D. Pulp—Soft and greenish.
- III. How Prepared for Commerce.
  - 1. Olives for table use.
    - A. In unripe condition.
    - B. Soaked in potash and water to reduce bitterness.
    - C. Bottled in aromatized brine.
  - 2. Olive Oil.
    - A. Process of securing.
      - a. Olives gathered.
      - b. Placed immediately in crushing mill and ground into pulp.
      - c. Pulp placed in press operated by screw.
      - d. Oil remains on top, impurities settling.
      - e. Oil oozes from pulp into barrel containing water.
      - f. Virgin oil—Product of first pressure.
      - g. Last product inferior, used for soap, pulp, or fuel.
      - h. Clarification—Filtered through sand and charcoal.
- IV. Where Found.
  - 1. Native of Syria.
  - 2. Grown in Asia, Europe, Australia, Southern States, California.
- V. How Propagated.
  - 1. Slips.
  - 2. Seeds.
  - 3. Grafting.
- VI. Use.
  - 1. Table use.
  - 2. For olive oil.
  - 3. Wood prized in cabinet work.
  - 4. For adulterating and flavoring tea (China).

VII. HISTORY.
  1. Associated with garden of Gethsemane.
  2. Held sacred to Minerva by ancients.
  3. Wreaths of olives—Placed on brows of victors by Greeks and Romans.
  4. Emblem of peace—So regarded by many nations.
  5. Introduced in United States—200 years ago.

Questions on the Olive.

What can you say of the use and value of olive wood? 2032.
How was the olive tree regarded by the ancients?
What is the height of the olive tree?
What is the color of the flower?
How old will an olive tree live to be?
How is the bitter taste of olives reduced?
How is olive oil made?
What is virgin olive oil?
What quality of olive oil is used in soap making?
What part of the olive is used for fuel?
How is the olive tree propagated?
When was olive oil introduced in the United States?
In what countries are plantations of olive trees most abundant?
How is olive oil clarified to give it its beautiful golden color?
The oil of what nut is sold as a substitute of olive oil?
Olives intended for table use are picked in what condition?
The olive branch is a symbol of what?
What are the principal uses of the olive fruit?
What commercial product is sometimes adulterated by the use of olive leaves?

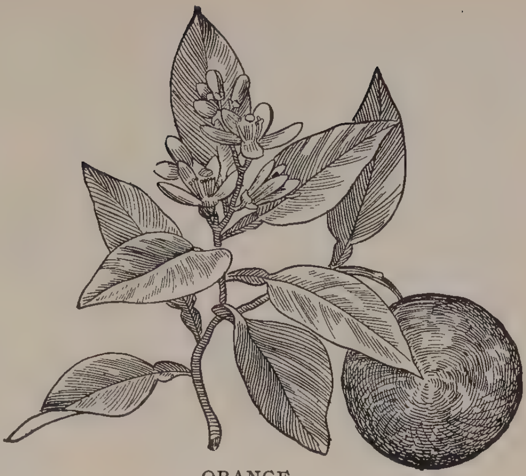
Orange.

I. ORDER—Rutaceae.
II. DESCRIPTION.
  1. Tree.
    A. Small evergreen.
    B. Height (Wild 30 ft.; tame, much less).
    C. Time required to bear, 6 years.
    D. Age (Often 600 years).
    E. Wood—Fine grained, smooth.
  2. Leaves.
    A. Color—Green.
    B. Shape—Oblong, thick, smooth.
  3. Flower.
    A. White—Waxlike and fragrant.
    B. Worn by brides.
  4. Fruit.
    A. Color—Bright yellow.
    B. Shape—Spherical.
    C. Rind—Thick.
    D. Pulp—Collection of oblong segments filled with luscious juice.

III. VARIETIES.
  1. China orange.
  2. Lisbon orange.
  3. Maltese, or red pulped, orange.
  4. Mandarin, or clove (Small and flattened) orange.
  5. Saint Michael.
  6. Majorca seedless.
  7. Tangerine.
  8. Valencia.
  9. Egg orange (Oval shape).
  10. Navel—seedless.
  11. Blood oranges—Dark red juice.
  12. Russets—Florida.

IV. HOW PICKED.
  1. Picked while green.
  2. Wrapped in paper.
  3. Shipped in boxes of 250.
  4. Ripened during transit.

V. USE.
  1. Sweet, for eating.
  2. Bitter, for flavoring and medicine.
  3. Fragrant oils from rind, leaves, and flowers.
  4. Curaçoa—Drink.



ORANGE.

VI. WHERE GROWN.
  1. United States — California, Florida, and Louisiana.
  2. Mexico.
  3. West Indes.
  4. East Indies.
  5. China.
  6. India.
  7. Australia.
  8. North Africa.

Questions on the Orange.

At what age does the orange tree begin to bear fruit? 2045.

Which obtains the greater age, an orange tree or an olive tree?

Which produces the greater number of fruit, orange trees or lemon trees?

What is Curaçoa? Is it made from the best class of oranges?

About how many oranges are shipped in a box?

What is the name of the variety of oranges which are egg shaped?

What is a Maltese orange?

What is a clove orange, or Mandarin orange?

How do the different species of orange fruit originate?

What is the color of orange flowers and what can you say of their fragrance?

When was the first orange cultivated in Portugal?

Of what country is the orange a native?

What states produce the most oranges?

What is the difference between the California orange and the Florida orange?

What is a blood orange? Why is it so called?

From what are the fragrant oils of the orange obtained? What are their uses?

Name eight varieties of oranges sold on the market.

What uses are made of the bitter orange?

What can you say of the value of the wood of the orange tree?

What can you say of oranges as to food value?

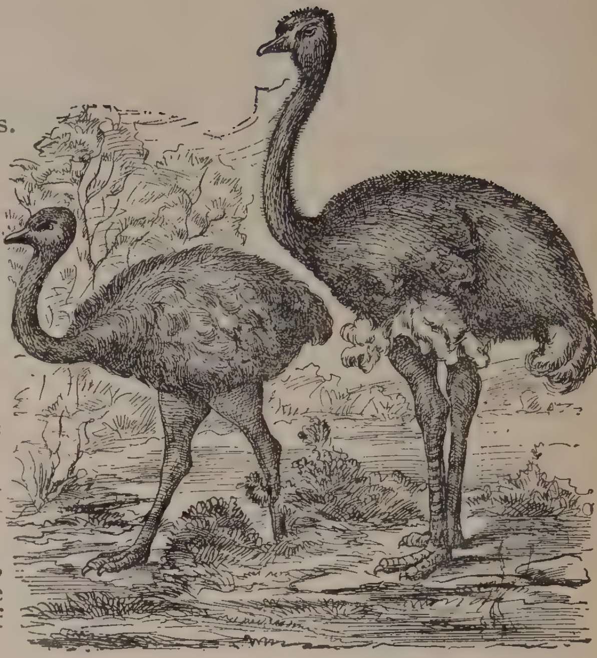
Why are orange blossoms worn by brides on their wedding day?

Why is the navel a special favorite with the consumer?

Ostrich.

I. GENUS—Cursores.
  1. Related to rhea, emu, cassowary.

II. DESCRIPTION.
  1. Largest of living birds.
  2. Height—6 ft. to 8 ft.
  3. Weight—70 lbs. to 300 lbs.
  4. Head—Flat.
  5. Bill—Stout.
  6. Eyes—Large.
  7. Neck—Long and naked.
  8. Legs—Long and powerful, giving great speed.
  9. Toes—Two, corresponding to third and fourth of other birds.
  10. Neck and thighs—Bare.
  11. Wings—Small, of little service in flight.
  12. Feathers — Fluffy and plumelike.
  13. Color.
    A. Males — Shiny, black, with white plumes at end of wings and tail.
    B. Females — Dull, brown color.
    C. Chicks—Striped.



RHEA. OSTRICH.

III. CHARACTERISTICS.
  1. Timidity.
  2. Remarkable speed, often outstripping the fastest horse.

IV. FOOD.
  1. Wild state.
    A. Herbs, seeds, and fruits.
  2. Domesticated.
    A. Usually fed on alfalfa or grass and clover mixed with fruit.

V. REARING OF YOUNG.
  1. Nest (Built in sand).
  2. Eggs.
    A. Number—8 to 15 from several hens.
    B. Weight—About 3 lbs.; about 20 in. in circumference.
  3. Hatching.
    A. Incubated by cock and hen alternating, cock usually occupying nest at night.
    B. Length of time required for hatching (6 weeks).

VI. WHY DOMESTICATED.
  1. For feathers.
    A. Black and white plumes from male.
    B. Brown from female.
    C. Value—Varying according to size and quality from a few cents to $50.

VII. HOW HUNTED.
  1. On horseback or by using covering of ostrich skin.
  2. Defend themselves with great vigor by means of powerful legs and beaks.
  3. Sound—Something like cackle, seldom given except in distress.

VIII. Where Found.

1. Native to deserts of Africa and Arabia.
2. Ostrich farms.
    A. South Africa.
    B. North Africa.
    C. California.
    D. Australia.
    E. Arizona.
    F. Mexico.

Questions on the Ostrich.

To what countries is the ostrich native? 2062.
What other birds resemble the ostrich?
What is the height of the full-grown ostrich?
Speak of the ostrich as to size and strength.
What can you say of its antiquity and mention in early history?
How many toes has the ostrich?
In the wild state, what animals does the ostrich usually follow?
What is their principal means of safety from their enemies?
What is the color of the male ostrich?
How many plumes will an ostrich yield a year?
What is the price of ostrich plumes per pound?
Tell how ostriches are hunted.
How many ostrich eggs are laid in the same nest?
How are the eggs hatched?
Which sits on the nest at night, the male or female?
How many pounds will an ostrich egg weigh?
How long does it take an ostrich egg to hatch?
What is the average weight of the ostrich?
What is the average stride of the ostrich in walking? In running?
Is the flesh fit to be eaten?
What are the principal differences between the rhea and the ostrich?

A Few of the Bird Family.

The old bob white, and chipbird;
  The flicker and chee-wink,
And little hopty-skip bird
  Along the river brink.

The blackbird and snowbird,
  The chicken-hawk and crane;
The glossy old black crow-bird,
  And buzzard, down the lane.

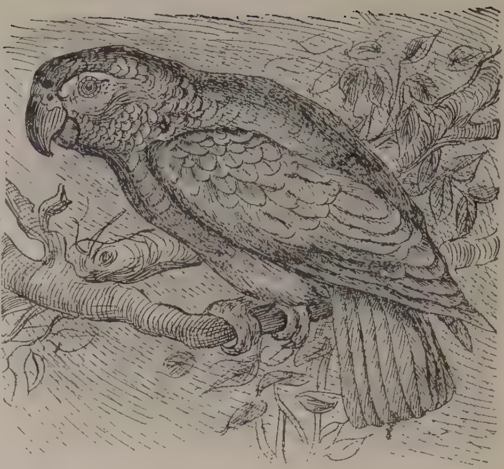
The yellowbird and redbird,
  The tom-tit and the cat;
The thrush and that redhead bird
  The rest's all pickin' at!

The jay-bird and the blue bird,
  The sap-suck and the wren—
The cockadoodle-doo bird,
  And our settin' hen!

—*James Whitcomb Riley.*

Parrot.

I. CLASS—Climbers.
II. SPECIES—(About 350 known, 150 of which are in America).
III. DESCRIPTION.
  1. Size—From that of swallow to birds of 3 ft. in length.
  2. Color—Bright green, red, blue, and yellow.
  3. Tongue—Soft, large, fleshy (Sometimes fringed, or tufted). Barbarous tribes sometimes slit tongue to cause better articulation.
  4. Bill—Stout and hooked, movably hinged to jaw.
  5. Wings—Short, broad.
  6. Feet—Rough, stout.
    A. Toes.
      a. Two before, two behind.
      b. Outer toe turned backward.
  7. Voice—Coarse and harsh, though articulate.
IV. FOOD.
  1. Fruit.
  2. Nuts.
  3. Seeds.
  4. Buds.
  5. Plantain.
  6. Insects.
V. NESTS.
  A. Where made.
    1. Hollow trees.
    2. Holes in rocks.
    3. Deserted buildings.
  B. Eggs.
    1. Number—2.
    2. Color—White.
    3. Shape—Rounded.
VI. CHARACTERISTICS.
  1. Affectionate.
  2. Imitative.
  3. Docile.


GRAY PARROT,

  4. Hardy.
  5. Long lived.
VII. KINDS.
  1. Gray parrot.
    a. Home—West Africa.
    b. Color—Ashy white, black wing quills, red tail.
    c. Skill—The best of talkers.
  2. Carolina parrot.
    a. Home—United States.
    b. Size—12 in. or 13 in. long.
    c. Color—Green back, yellow head, red cheeks (Fast becoming extinct).
  3. Macaw.
    a. Where found.
    b. Size.
    c. Plumage—Beautiful.
    d. Number of broods—Two per season.
  4. Cockatoo.
    a. Name—From peculiar harsh utterance.
    b. Head—Tufted crown.
    c. Lives in tribes.
    d. Easily domesticated,

Questions on the Parrot.

About how many species of parrots are known? In which country are the most species found?

What is said of the comparative size of these birds? Which are the largest and where are they found?

Why are the love birds so called? Describe the tongue.

Which species is said to best imitate the human voice?

How do the Carolina parrots differ from others of America?

Mention a peculiar fact of the macaws in brooding.

What is said of the temperament of parrots? 2114.

Where do these birds best like to be? What progress do they make when going about on the ground?

For what are the macaws noted?

Where are the favorite nesting places?

In which zones are parrots most numerous?

Story of a Nest.

Far away in the beautiful land of Brazil,
Where the birds are all singing o'er valley and hill,
Two little children walked out 'neath the trees,
Talking in musical Portuguese;
And if you will listen to what I say,
I'll tell you in English their words that day.
"Sister," said Manuel, "often I've heard,
That the trees scarce have room for the nest of each bird;
For this is the land of these beautiful things,
And the air seems alive with their songs and their wings;
And I think that I know of a little bird breast,
Which was puzzled and troubled for a place for a nest."
"Now, brother," said Lena, "don't tell me a word,
Let me hunt for the nest of this crowded out bird."
So away they went roving o'er hill and through dell;—
Of the nests that they found 'twould take hours to tell.
There were nests in the orange trees, blossoming white,
There were nests in the coffee trees, glossy and bright,
There were nests in the hedges, the bushes and grass,
In the dark, hanging vines, by each roadside and pass.
There were blue eggs and speckled eggs, brown eggs and white,
And yellow throats opening with chirpings of fright.
"Search no longer," said Manuel, "'mid bushes and trees,
'Tis a stranger place, sister, than any of these."
"I give up," said Lena, a shade on her brow,
"Come, hasten, dear Manuel, I'll follow you now."
Then away to the garden the little feet sped,
And he showed her the nest in a big cabbage head!

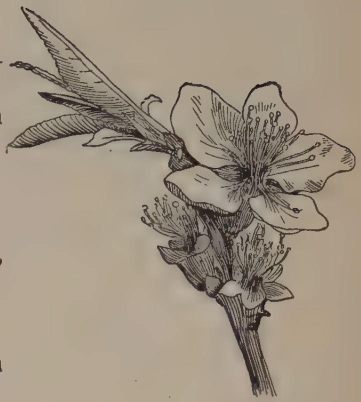
—*Anna R. Henderson.*

Peach.

I. ORDER—Rosaceae.

II. DESCRIPTION.

- 1. Tree (8 ft. to 25 ft. high).
  - A. Branches—Irregular.
  - B. Leaves—Glossy and lanceolate or willow-like.
  - C. Blossoms—Light pink, appearing in spring.
  - D. Fruit.
    - a. Shape—Roundish drupe.
    - b. Size—1 in. to 3 in. in diameter.
    - c. Color—Downy reddish, yellowish, and whitish skin.
    - d. Seed—A furrowed, flattish stone.
    - e. Kind.
      - (a) Freestone (Fleshy part when ripe separates from seed).
      - (b) Clingstone (Flesh does not separate).



PEACH FLOWER.

III. WHERE FOUND.

- 1. Native of Persia and Syria (Several species grow wild).
- 2. United States (Grown most extensively).
  - A. Southern shores of Great Lakes.
  - B. Central part of Mississippi valley.
  - C. Southern States.
  - D. Pacific coast.
- 3. Ontario and British Columbia.

IV. HOW PROPAGATED (From seed).

- 1. Cultivated in orchards.

V. ANNUAL OUTPUT (In United States 40,500,000 bu.).

VI. USE.

- 1. Eaten raw.
- 2. Dried.
- 3. Peach brandy.

VII. HOW PREPARED FOR MARKET.

- 1. Gathered before quite ripe.
- 2. Placed in small baskets.
- 3. Shipped in refrigerator cars.

Questions on the Peach.

Is the peach tree a distinct genus, or is it allied to the almond, cherry, and plum? 2131.

What is the general height of the peach tree?

What is the color of its blossoms and which appears first, the leaves or its blossoms?

Of what country is the peach tree native?

When was it introduced into Europe?

What are the two principal classes of peaches?

How old must a peach tree be before it bears?

How many years have they been known to produce?

How is the peach tree propagated, from the seed or from cuttings?

Which provinces of Canada are best adapted to the cultivation of peach orchards.

Where are the most productive peach-growing regions in the United States?

What Southern State produces the most peaches and what is the annual yield in the number of bushels?

How many bushels of peaches are produced annually in the United States?

In what condition are peaches gathered for the market and how are they shipped?

What can you say about the keeping qualities of dried peaches?

Where is peach brandy usually made?

Pear.

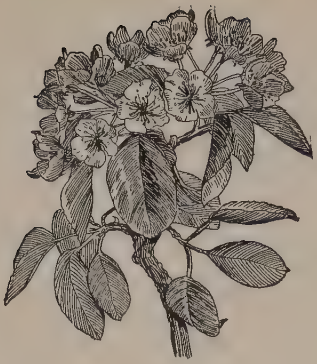
I. FAMILY (Rose).

II. DESCRIPTION.
  1. Native of Asia.
  2. Tree.
    A. Wild state—Small and thorny.
    B. Cultivated—Thornless.
      a. Height (25 ft. to 60 ft.).
      b. Diameter (Quite often 3 ft.).
      c. Age (Usually live only a few years, but some have been known to live 300 years).
      d. Wood—Hard and durable.
  3. Leaves—Green and shiny on upper side.
  4. Flower—White, resembling apple.
  5. Fruit.
    A. Resembles apple.
    B. Shape—Irregularly conical with base of cone hanging down.
    C. Pulp—When ripe, soft, sweetish, and delicious flavor.

III. HOW PROPAGATED.
  1. Grafting on quince, white thorn, and other trees.
  2. Budded on seedlings of species called *free stocks.*

IV. VARIETIES (225).
  1. Bartlett pear (90 per cent.).
  2. Seckel pear.

V. WHERE GROWN.
  1. Practically every country in temperate and tropical zones.



PEAR FLOWER.

  2. United States.
    A. California (first rank).
    B. New York.
    C. Ohio.
    D. Michigan.
    E. Indiana.
    F. Pennsylvania.
  3. Canada (Prolific producer of several fine grades).

VI. HOW PREPARED FOR MARKET.
  1. Picked before ripe.
  2. Wrapped in separate papers.
  3. Transported in refrigerator cars.

VII. USE.
  1. Eaten raw.
  2. For cooking.
  3. Manufacture of wine.
  4. Perry, or pear cider.
  5. Wood used in manufacture of musical instruments, turners' tools, and wood engraving.

VIII. ANNUAL CROP OF THE UNITED STATES (3,500,000 bu.).

Questions on the Pear.

Of what continents is the pear a native? 2132.
Describe the wild pear tree and its fruit.
To what height will a pear tree grow?
How great a diameter does a pear tree attain in a favorable climate?
How many species of pears are recognized by writers at the present time? How many in Rome at the time of Pliny? 2132.

Would a pear tree planted at the time the Pilgrim Fathers landed at Plymouth Rock be capable of bearing fruit at the present time? 2133.

Name three uses of pear tree wood in manufacture.

What is the favorite pear on the American market?

What two states rank first in the production of pears?

The Bartlett pear constitutes what per cent. of the entire crop of the United States?

Which is the more valuable, the pear or the peach crop? 2131 and 2133.

What is pear cider generally called?

In what country is pear cider made in large quantities?

How many million bushels is produced annually in United States?

How are pears dried?

How are pears prepared for the market and shipped?

In what countries are they raised?

Are apples, pears, and quinces related in family? 2132 and 2355.

Why is the Japan quince cultivated?

What use is made of the quince fruit? 2133.

The River Path.

There's a path beside the river,
  Winding through the willow copse,
Where I love to walk in autumn
  Ere the season's curtain drops.

On far hillsides beech and maple,
  Touched by early nipping frost,
Have their brown and crimson jackets
  To the boisterous breezes tossed.

Still the willow leaves are clinging,
  Latest foliage of fall,
Shading yet my river pathway
  Underneath the osiers tall.

On the wimpling water's surface
  Drift a million truant leaves,
Stolen from the woodland reaches
  By the wind, the prince of thieves.

All along the river edges
  Verdure's turned to brown and gray,
Rustling through the dying sedges
  Autumn's low voiced breezes play.

Nowhere sweeter walk or rarer
  Than my path beside the stream.
There I love to stroll in autumn,
  There to loiter and to dream.

—*Frank Farrington.*

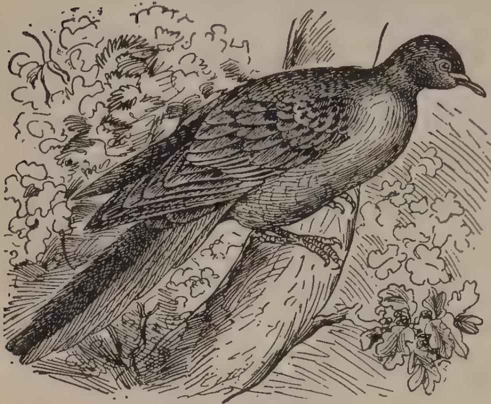
Pigeon.

I. ORDER—Columbae.
  1. Species (Over 500).
II. DESCRIPTION.
  1. Body—Heavy. 2. Legs—Short. 3. Head—Small.
  4. Wings—Large, strong in flight.
  5. Bill—Short, straight, and compressed (Though upper mandible may be slightly curved at tip).
  6. Nostrils—Protected by a fleshy scale.
  7. Color.
    A. Temperate regions—Dull gray, brown, or slate, though some are black and white.
    B. Tropical regions—Bright shades of blue and purple.
III. CLASSIFICATION.
  1. Wild pigeons.
    A. Gouras.
      (a) Found in Papua.
      (b) Length—2 ft.
      (c) Large and showy crests and rich color.
    B. Passenger.
      (a) Formerly found in great numbers in Northern United States—Almost exterminated by hunters.
      (b) Length—15 in.
      (c) Plumage—Finely tinted.
      (d) Tail—Long and pointed in shape, feathers tapering in regular order.
      (e) Formerly migrated in communities of millions.
      (f) Nests—Sometimes hundreds in one tree.
    C. Mourning Pigeon (Or turtle doves).
      (a) Length (10 in.).
      (b) Color (Grayish brown).
      (c) Nest (Built of twigs).
      (d) Eggs (Two—Cream white color).
      (e) Hatching (Male and female alternate sitting on nest).
      (f) Peculiar characteristics (Cooing and affection for mate).
      (g) Other species.
        Carolina turtle dove.
        Collared turtle dove.
  2. Domesticated Pigeons.
    A. Fantail.
      a. Description (Tail large, erect; opens like a fan).
    B. The Carrier, or Homing, Pigeon.
      a. Description.
        (a) Size (Large).
        (b) Beak (Base of—naked).
        (c) Wings (Long).
        (d) Eyes (Surrounded by circle of naked skin).
        (e) Commercial use (For carrying letters or messages).
        (f) Flight (Rate, 30 miles per hour). (Distances, from 200 to 1,000 miles).
    C. The Pouter.
      a. Peculiar power (To swell crop to a very large size).
    D. Jacobins.
      a. Distinguishing characteristics (Big ruff of feathers about the neck and head).
    E. Tumblers.
      a. Peculiar habit (Turn somersaults in the air).

        b. Beauty and price (Handsome, high price).
    F. Runt.

IV. HABITS.
- 1. Perch in trees.
- 2. Build nests on some elevated spot.
    - A. Domestic pigeons breed in barns.
    - B. Both male and female sit on eggs.
- 3. Pair for life.
- 4. Young at hatching.
    - A. Blind, naked, and helpless.
    - B. Fed masticated food from crop of parents.

V. WHERE FOUND.
- 1. Widely distributed, though most abundant in tropical regions.
- 2. Pigeon culture important in India, China, Persia, Belgium, and Holland.



PASSENGER PIGEON.

The Mother-Dove.

High on the top of an old pine-tree
Broods a mother-dove with her young ones three.
Warm over them is her soft downy breast,
And they sing so sweetly in their nest.
"Coo," say the little ones, "Coo," says she,
All in their nest on the old pine-tree.

Fast grow the young ones, day and night,
Till their wings are plumed for a longer flight,
Till unto them at last draws nigh
The time when they all must say "Good-bye."
Then "Coo," say the little ones, "Coo," says she,
And away they fly from the old pine-tree.

Questions on the Pigeon.

What can you say about the distribution of pigeons? In what climates are they most abundant? 2212.

Do pigeons build their nests in trees?

What can you say of their variety of color and habits?

Where does the domestic pigeon breed?

What can you say about the mating of pigeons?

Do male and female birds both sit on the eggs? Is this common with other kinds of birds?

How do they differ in this respect from the ostrich? 2212.

Name nine kinds of pigeons?

Describe the passenger pigeon.

What are the chief articles of food of pigeons?

In what countries is pigeon culture an important industry?

From what bird is the domestic pigeon supposed to be a descendant?

What is the object in rearing pigeons from a financial standpoint?

Are turtle doves related to pigeons?

Describe the turtle dove. 2946.

How many miles an hour does the carrier pigeon fly? 492.

What is the best distance record ever made by American homing pigeons?

Why do they wash the carrier pigeon's feet with vinegar?

How is the message attached to the carrier pigeon?

How are they trained for service?

Tell how Joshua in Bible times made use of the carrier pigeon. 491.

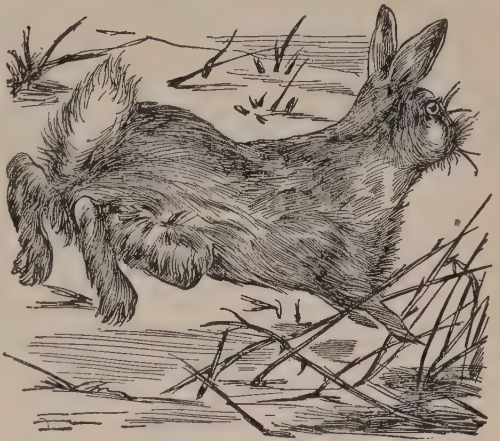
What nation first made use of the carrier pigeon?

During the siege of Paris by the German army, in 1870 and 1871, how many thousand official messages were carried into the city by means of pigeons?

In what countries do they use the trained carrier pigeons in national games?

Rabbit.

I. RODENTIA.
II. DESCRIPTION.
  1. Native of temperate climates.
  2. Ears—Long.
  3. Teeth—Incisors, large, curved, and very sharp.
  4. Legs—Hind legs powerfully developed.
  5. Toes—5 on fore feet; 4 on hind feet.
  6. Color.
    A. Native state—Brown.
    B. Domestication — Varied, including black, white, gray, spotted.
  7. Life—Average 6 to 7 years.
III. HABITS.
  1. Gregarious and in wild state pairs for life.
  2. Haunts—Sandy pastures and hilltops. Remains concealed during the day and roams around at night.
  3. Young.
    A. Brought forth in litters.
    B. Blind and naked at birth.
    C. Mother cares carefully for them in burrows.
  4. Breeding—Age of 6 months.
    A. Several litters a year.
IV. CHARACTERISTICS.
  1. Timidity—Seeks safety by rapid and continuous running.
  2. Senses—Well developed.
  3. Very prolific.
    A. Pest in some countries.
V. CLASSES (Several species).
  1. Cottontail, or gray, rabbit.
  2. Dark rabbit (Western states).
  3. Domesticated rabbits.
    A. Albino or white rabbit (White hair and pink eyes).
VI. WHERE FOUND.
  1. North America, especially Mississippi Valley and Southern Canada.
  2. Australia (Domesticated).
VII. FOOD.
  1. Grass.
  2. Herbage.
  3. Vegetables.
  4. Bark (Often damaging young plants and orchards).
VIII. USE.
  1. Food.
  2. Hair—For felting purposes.
  3. Skin—In making glue.
  4. Fur—For making caps.



GRAY RABBIT

Questions on the Rabbit.

Where is the rabbit supposed to have originated? 2359.
Give the distinguishing features of the rabbit and the hare.
How does the rabbit seek safety from its enemies? 2360.
What use is made of the rabbit fur?
From what part of the rabbit is glue and size made?
In what way are rabbits an injury to orchards?
When is the best time to go rabbit hunting?
In what countries have rabbits become a pest?
At what season of the year is rabbit flesh the best for eating? Give reason.
Describe the cottontail.

Describe the Jack rabbit. 1428.
Which is the larger, a Jack rabbit or a Norwegian hare?
What is the color of Jack rabbits in the winter? In the summer?
Where are Jack rabbits found? 1428.
Is the Jack rabbit a hare? 1252.
Describe the polar hare of North America.
What can you say about their food and their habits?
What use is made of the fur of the hare?
What can you say about the voice of the hare?
Of what continent are they a native?
About how many young do they produce and how many litters per year? 2360.
Where do rabbits stay during the daytime?
Which has the longer ears, a hare or a rabbit? 2359.
Which can run the faster, the hare or the rabbit?

The Timid Rabbit.

Of all the beasts he learned the language,
Learned their names and all their secrets,
How the beavers built their lodges,
Where the squirrels hid their acorns,
How the reindeer ran so swiftly,
Why the rabbit was so timid,
Talked with them whene'er he met them,
Called them "Hiawatha's Brothers."

* * * * * * *

And the rabbit from his pathway
Leaped aside, and at a distance
Sat erect upon his haunches,
Half in fear and half in frolic,
Saying to the little hunter,
"Do not shoot me, Hiawatha."

—*Longfellow.*

The Hare and the Tortoise.

A Hare one day ridiculed the slow pace of the Tortoise, and boasted of his own speed in running.

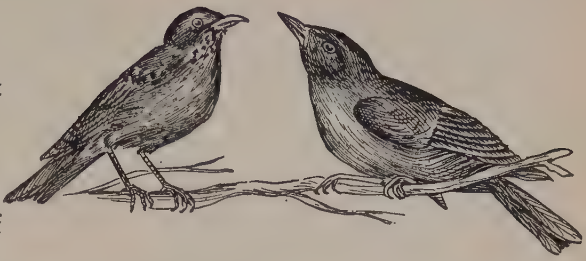
The Tortoise said, "Let us try a race. I will run with you five miles, and our friend the Fox may act as judge."

"All right," said the Hare, and away they went together. The Tortoise jogged along with a slow and steady pace to the end of the journey.

The Hare first outran the Tortoise, then fell behind and began to nibble at the grass and to play hide and seek with other hares. Finally he became tired with play and lay down for a nap, saying, "If the Tortoise should get ahead of me I could catch up with her and pass her without the least trouble." The Hare woke up but the Tortoise was not in sight; and running as fast as he could he found her at her goal fast asleep, while the Fox stood waiting to tell the Hare he had lost the race.

—*Aesop's Fables.*

Robin, or Robin Redbreast.



ROBIN REDBREAST. GOLDEN ROBIN.

I. SPECIES.
  1. American—Thrush.
  2. European—Warbler.
 A. Native home—Europe.
 B. Origin of name—Red breast of male.
 C. Kinds.
  1. Robin redbreast.
  2. Golden robin.
 D. Migration (Summer bird of passage).
  1. Winter home—South.
  2. Summer home—Northern states and Canada.

II. DESCRIPTION.

A. American.	European.
1. Size—10 in. long.	1. 6 in. long.
2. Shape—Plump.	2. Round, plump.
3. Color—Black head and back, orange breast.	3. Olive brown body, reddish-orange breast.
B. Family—Perchers.	
1. Broods—2 per season.	1. 2 each season.
2. Number of young—4 to 6.	2. 5 to 7.
C. Nest.	
1. Where built (Trees, rafters, etc.).	1. Bushes, ivy wall, and vines.
2. Material—Grasses, reeds, mud, and hair.	2. Moss, leaves, dried grass, and hair.
D. Eggs.	
1. Number—4 to 6.	1. 5 to 7.
2. Color—Greenish blue.	2. White spotted with reddish brown.
3. Size—5/8 in. in diameter.	3. Smaller.

 E. Food.
  1. Worms. 2. Insects.
  3. Small fruit, especially cherries.
  4. Crumbs.

III. CHARACTERISTICS.
  1. Travel in pairs rather than in flocks.
  2. Return to same nest of previous season.
  3. Familiar and friendly.
  4. Have pleasant voice and sweet song.

The Robin Redbreast.

Art thou the bird that man loves best,
The pious bird with the scarlet breast,
  Our little English robin;
The bird that comes about our doors
  When autumn winds are sobbing?
Art thou the Peter of Norway boors?
  Their Thomas in Finland,
  And Russia far inland?
The bird that by some name or other
All men who know thee call thee brother?
—*Wordsworth.*

The Robin's Return.

Robin on the tilting bough,
Redbreast rover, tell me how
You the weary time have passed
Since we saw and heard you last.

"In a green and pleasant land,
By a summer sea-breeze fanned,
Orange trees with fruit are bent,—
There the weary time I've spent."

Robin, rover, there, no doubt,
Your best music you poured out;
Piping to a stranger's ear,
You forgot your lovers here.

"Little lady, on my word,
You do wrong a true-hearted bird!
Not one ditty did I sing,
'Mong the leaves or on the wing,

"In the sun or in the rain;
Stranger's ears would list in vain,
If I ever tried a note,
Something rose up in my throat.

"'Twas because my heart was true
To the North and springtime new;
My mind's eye, a nest could see
In yon old, forked apple tree!"

—*Edith Thomas.*

The Four Seasons.

First Pupil:

Robins in the tree top,
  Blossoms in the grass,
Green things a-growing,
  Everywhere you pass;
Sudden little breezes,
  Showers of silver dew,
Black bough and bent twig
  Budding out anew;
Pine tree and willow tree,
  Fringed elm and larch—
Don't you think that May time's
  Pleasanter than March?

Second Pupil:

Apples in the orchard
  Mellowing one by one;
Strawberries upturning
  Soft cheeks to the sun;
Roses faint with sweetness,
  Lilies fair of face,
Drowsy scents and murmurs
  Hunting every place;
Lengths of golden sunshine,
  Moonlight bright as day,
Don't you think that summer's
  Pleasanter than May?

Third Pupil:

Roger in the corn patch,
  Whistling negro songs;
Pussy by the hearthside
  Romping with the tongs;
Chestnuts in the ashes
  Bursting through the rind;
Red leaf and gold leaf
  Rustling down the wind;
Mother "doin' peaches"
  All the afternoon—
Don't you think that autumn's
  Pleasanter than June?

Fourth Pupil:

Little fairy snowflakes
  Dancing in the flue;
Old Mr. Santa Claus,
  What is keeping you?
Twilight and firelight,
  Shadows come and go;
Merry chime of sleighbells
  Tinkling through the snow;
Mother knitting stockings,
  (Pussy's got the ball)—
Don't you think that winter's
  Pleasanter than all?

—*T. B. Aldrich.*

Questions on the Robin.

To what continents is the robin native? 2429.

By what name is it familiarly known? Why so named?

Name some characteristics which make the robin a favorite.

Note the difference in color between the male and female.

Name some distinguishing features between the American and the European robin.

When and where do the robins migrate?

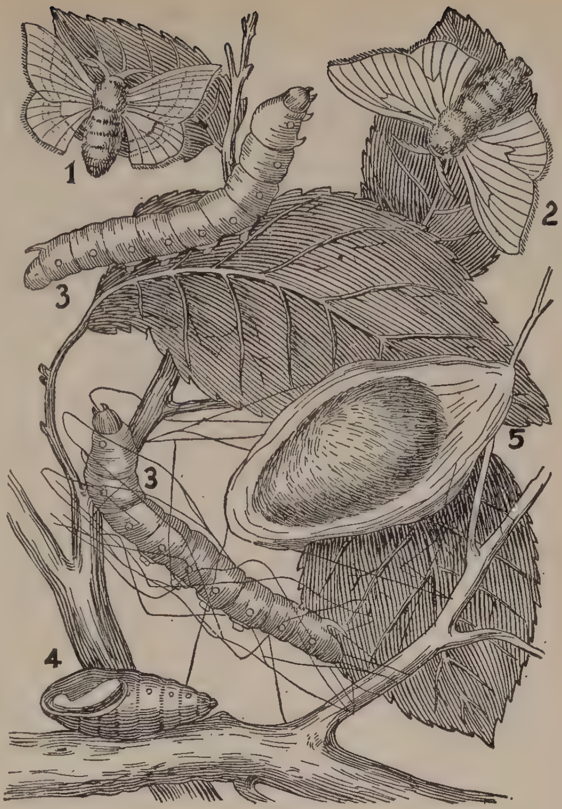
What is meant by the robin being a "percher"?

Silkworm.

I. Family—Bombycidae.
1. Species (About 400).

II. Silk Moth.
1. Description.
A. Body — Thick and hairy.
B. Length — Mature state 1 in.
C. Legs—Stout.
D. Wings — Large, marked with dark lines.
E. Body of female larger than male.
F. Both die after deposit of eggs.

III. Silkworm.
1. Eggs (300 to 500 in number).
2. Where placed.
A. Wild state—Leaves of mulberry tree.
B. Silk culture — On pieces of paper or muslin.
3. Conditions necessary for hatching.
A. Temperature of 80° F.
B. Room clean.
C. Good ventilation.
4. Caterpillar.
A. Early appearance—8 or 10 days.
B. Body—Parts.
a. 12 segments.
b. 6 anterior or fore legs.
c. Ten fleshy hind legs.
d. Large mouth with powerful jaws.
C. Stages of development.
a. Caterpillar state from 6 to 8 weeks.
b. Skin changes four times (Casting).
c. Body assumes an ashy color.
d. Length—3 in.
e. Food — Mulberry leaves.
f. Ceases eating fifth week.
g. Spinning of cocoon.
5. Cocoon development.
A. Place of attachment.
a. Wild state—Mulberry leaves.
b. Artificial state—Cells.
B. How attached—By hind legs.
C. How made—By throwing silk threads.
D. Threads.
a. Glutinous substance.
b. Secreted by two tubular glands. Location (On each side body, near head, connected with spinneret).
c. Length.
200 to 300 yards.
d. Nature.
Consists of two strands.
E. Time of spinning.
a. 3 to 5 days.
F. Preparation for pupa stage.
6. Chrysalis state.
A. Hatching.
a. Time required — 3 weeks.



SILKWORM.

1, Male Moth; 2, Female Moth; 3, 3, Silkworms; 4, Chrysalis; 5, Cocoon.

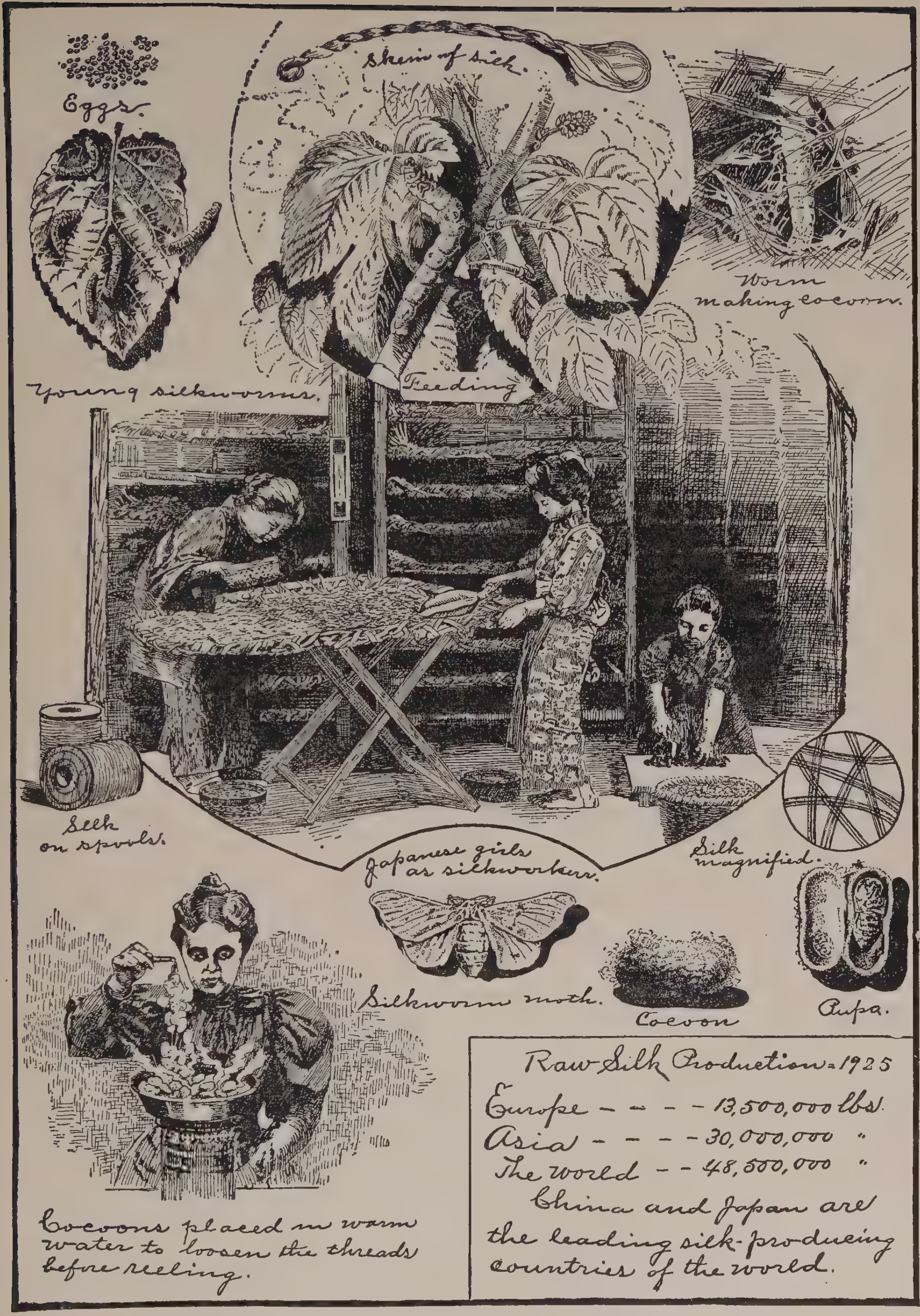
b. Prevention of hatching.
By placing in hot water, or warm oven.
c. Cocoons necessary for 1 lb. of raw silk—12.

IV. MANUFACTURE.
1. Placing in hot water kills moth and softens gum.
2. Unwinding of cocoon.
A. Outside cocoon floss silk.
B. Inside finest silk.
3. Reeling silk.
4. Raw silk.
A. Washing.
B. Winding on bobbins.
C. Assortment.
5. Throwing.
A. Unwinding from bobbins.
B. Twisting on machine.
C. Wound on reel.
D. Preparing threads for spinning.
a. Singles for plain silk and ribbons.
b. Double twisted in making warps (Tram silk).
c. Organzine (Twisted like a rope).
E. Dyeing raw silk.
F. Waste products (1/8 of cocoon).
a. Formerly considered useless.
b. Process discovered, in 1857, by which these products are utilized (Spin silk).
6. Weaving.
A. Power looms in United States and Canada.
B. Hand looms in Europe (Usually).
C. Hand looms entirely (China).
D. Manufacture of sewing silk.
a. Continuation of throwing.
b. Made by continuation of twisting of threads.
c. Process confined to America.

V. HISTORY.
1. Originated in China.
A. First cocoon unwound, 2600 B. C.
2. Introduced into Europe.
A. Carried by Persian monks 530 B. C.
B. Edict of Nantes.
3. Introduced into America.
A. Attempt by James I., into Virginia.
B. Introduced in South Carolina, Florida, California, and New Jersey, in 1850.

VI. COUNTRIES.
1. Raw silk.
A. China.
B. Japan.
C. Italy.
D. France.
2. Where manufactured.
A. France.
B. United States.
a. 650 silk factories.
b. Annual value $761,526,500.
c. Three-fourths raw silk manufactured here.
3. Germany.
4. Switzerland.

VII. ARTIFICIAL SILK.
1. Made of cellulose prepared from cotton and pulps of soft wood.
A. Cotton carded.
B. Treated with nitric and sulphine acid.
a. 15 parts nitric acid.
b. 85 parts sulphine acid.
C. Converted into nitrocellulose.
a. Clear blue color.
D. Pressed and carefully washed.
E. Collodion.
a. Dissolving in ether and alcohol.
F. Run between steel rollers.
G. Forced through tubes into nitric acid.
H. Fibers reeled.
I. Dried by warm air.
J. Washing and drying.
K. Spun and dried.


Eggs.
Skein of silk.
Worm making cocoon.
Young silkworms.
Feeding
Silk on spools.
Japanese girls as silkworkers.
Silk magnified.
Silkworm moth.
Cocoon
Pupa.
Cocoons placed in warm water to loosen the threads before reeling.

Raw-Silk Production-1925

Europe - - - - 13,500,000 lbs.
Asia - - - - 30,000,000 "
The World - - 48,500,000 "

China and Japan are the leading silk-producing countries of the world.

SILKWORMS AND THE SILK INDUSTRY.

The American Silk Worm.

The American silkworm is a large moth of a buff color, whose caterpillar feeds upon the leaves of many trees, such as the oak, maple, apple, willow, hickory, and sycamore. The cocoon is formed of strong silk, which has a glossy fiber when it is unwound. It is generally fastened to a leaf or to several leaves, with which it sometimes falls to the ground. A gummy substance cements the fibers together and when dry gives the cocoon a chalky appearance. The gummy substance is softened for reeling by soaking in warm water. This insect has two generations per year in the Southern States and passes the winter in the chrysalis state.

Questions on Silk and the Silkworm.

From what country is one-half of the raw silk obtained? 2636.

Of what material is artificial silk made?

How does the price of artificial silk compare with that of real silk?

Who is credited with unwinding the first silk cocoon 2600 B. C.? 2635.

What people carried the eggs of the silkworm in hollow canes from China to Constantinople about 530 A. D.?

What king first sent silkworm eggs to Virginia and offered rewards for the production of raw silk?

What is the color of raw silk?

Tell how to unwind the silk cocoon. What is floss silk?

In what country did the manufacture of silk originate?

What effect did the Edict of Nantes have upon the silk industry of France?

From what cities do we obtain most of our imported silk goods?

About what proportion of the raw silk produced in the world is handled by the mills of the United States?

About how many species of the silkworm are there?

How many eggs does the silk moth produce?

How many pounds of cocoons are required to produce a pound of raw silk?

How many silk factories are there in the United States at the present time and what is the value of their annual output?

Which is the larger, the male or the female silkworm?

How do the eggs of the silkworm compare in size with the mustard seed?

How long do they remain in the caterpillar stage and how many times does their skin change during this period?

How many legs has a caterpillar?

Tell how they spin the silk thread.

How is the moth killed in the cocoon?

How many pounds of raw silk are produced in the world annually?

What part of the silkworm is used in the manufacture of fish lines? 2637.

Give reasons why silk is more expensive than cotton.

Name five articles made from silk.

What temperature is necessary to hatch the silkworm egg and what time required?

Upon what do the caterpillars feed?

When do they begin to spin their cocoons? How long does this take?

Which is the better quality, artificial or natural silk? Give reasons.

Spider.

I. CLASS—Arachnida.
  An animal (Sometimes called insect).

II. DESCRIPTION.
  1. Body—2 segments.
    A. 1. Head; eyes (8).
       2. Chest — Breathes through lung sacs.
    B. Abdomen.
      1. Structure.
        a. Tubes.
        b. Fluid.
        c. Thread.
    C. Legs—8, in 4 pairs.
      New limbs may grow again when others are destroyed.
    D. Mandibles.
      1. Hooked.
      2. Use.
      3. Fluid.
    E. Color—Various (Often same as leaves, bark, or petals of flowers where they occur).
    F. Size—From minute size to several inches in diameter.
    G. Shape—Same at birth as when adult.
      Skin changes 6 or 9 times.
  2. Food.
    A. Kinds.
      1. Flies.
      2. Birds.
      3. Small reptiles.
        Suck juices from prey.
    B. How obtained.
    C. Manner of poisoning.
  3. Eggs.
      1. Number (From 50 to 2,000).
      2. Where laid (Silk cocoon).
      3. Hatching.
  4. Webs, or Nests.
      1. Construction.
      2. By which made (Usually the female).
      3. Kinds.
      4. Use.
      5. Where made.
        a. Plants.
        b. Buildings.
        c. Water.
        d. Under ground.
  5. Habits.
      1. Fighting.
      2. Hiding.
      3. Leaping.
      4. Running.
      5. Swimming.

III. SPECIES.
  1. House.
  2. Garden.
  3. Water.
  4. Trapdoor.
  5. Tropical.
  6. Tarantula.

Questions on the Spider.

Name three ways in which spiders differ from insects. 2707.
Which senses are most highly developed?
Give the construction of the second segment.
Compare the male and female in size and strength.
Describe the web-making process.
What may be said regarding the parental attitude of spiders?
What animals are enemies of spiders?
How great are the poisonous effects of spiders?
Where is the home of the tarantula?
In what regions are spiders found in greatest number and of largest size?
Why are the trapdoor spiders so called?
Describe the home of the water spider.
How are the young of the scorpion cared for? 2561.

Squirrel.

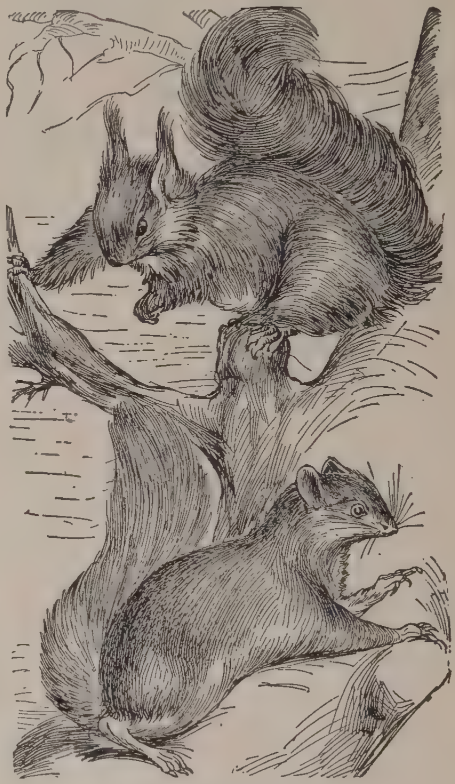
I. Class—Mammalia.
  1. Order — Rodentia (Gnawing animals).

II. Characteristics.
  1. No canine teeth.
  2. Two powerful incisors.
  3. Molar teeth flat.
  4. Motion of jaw backward and forward.
  5. Body slender.
  6. Bright eyes.
  7. Ears small and pointed.
  8. Tail long and bushy.
  9. Hind feet have 5 toes.
  10. Front feet 4 toes and a thumb-like projection.

III. Groups.
  1. Tree Squirrels.
    A. Ruddy-brown color upper parts.
    B. Reddish white below.
    C. Color varies with season, generally grayish in the winter.
    D. Live in trees.
    E. Food — Nuts, seeds, acorns.
    F. Flesh valued as food.
  2. Ground Squirrels.
    A. Species.
      (a) Gray, striped, red.
    B. Home in burrows in ground.
    C. Food — Seeds, tender shoots of plants, cereals.
    D. Pest to cornfields in central west.
  3. Flying Squirrels.
    A. Extension of skin connecting fore and hind legs forming a parachute.
    B. Flying motion.
    C. Roam at night and seen little in daytime.

IV. Where Found.
  1. Tree squirrels—In forests of North America and most other continents.
  2. Ground squirrels—Both timber and prairie regions.
  3. Flying squirrels — Western Asia, North America, Siberia, Eastern Europe.

V. Use.
  1. Fur.
  2. Food.
  3. Pets.


TREE SQUIRRELS.

Questions on the Squirrel.

What continent has no squirrels? 2719.
How many toes has a squirrel on its fore feet? On its hind feet?

In what countries are flying squirrels found? 2720.
Do they roam about in the daytime or at night?
Why are ground squirrels harmful to farmers?
In what country do we find the best fur-bearing squirrels?
Name three kinds of ground squirrels and describe them. 2719.
What kind of squirrels produces the best meat?
What is the effect of the change of seasons on the color of the squirrels?
What do the squirrels do in the cold weather of winter?
What do they eat? How do they provide food for the winter?
In what countries are tree squirrels most abundant?

The Squirrel.

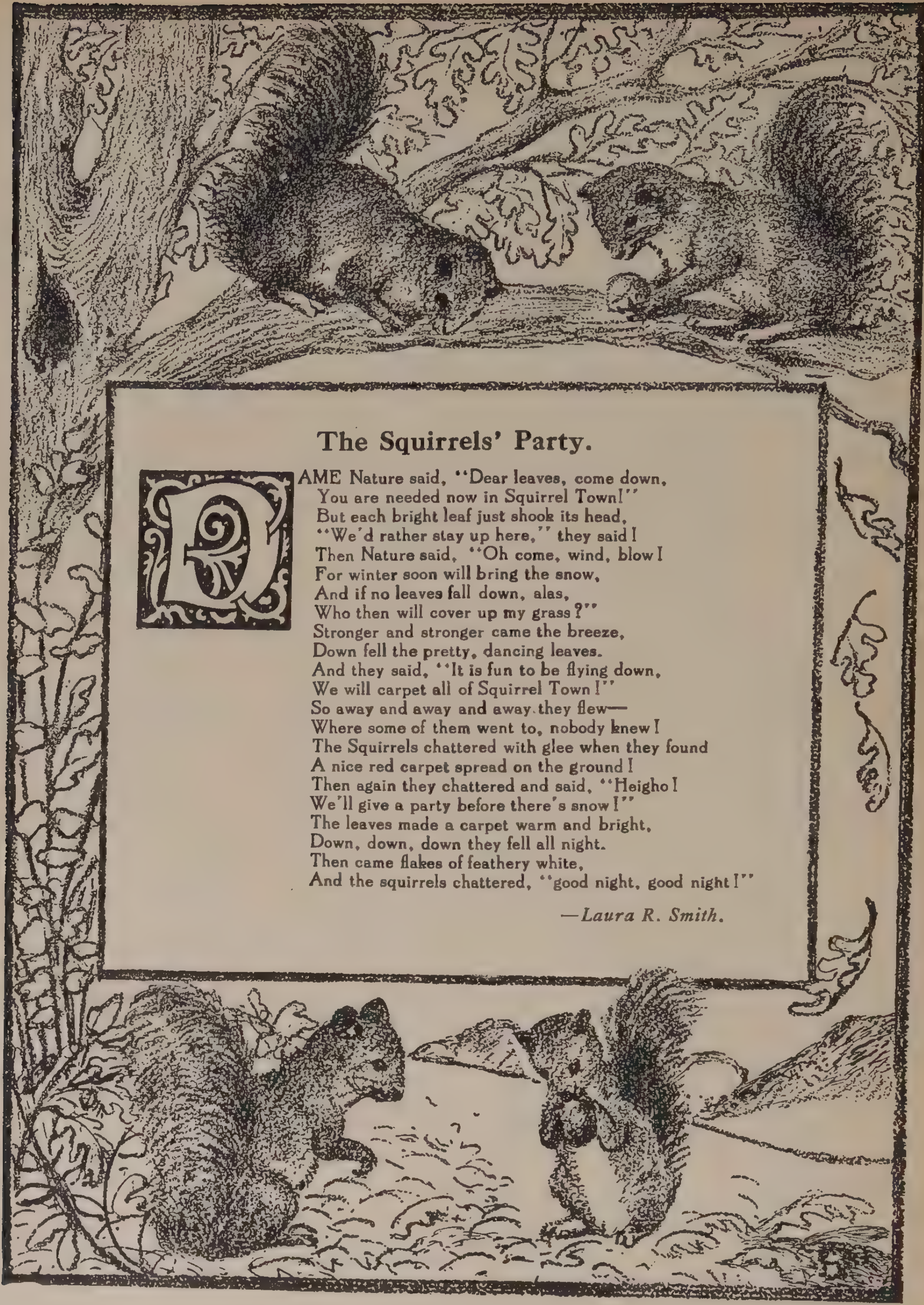
In the joy of his nature he frisks with a bound
To the topmost twigs, and then to the ground;
Then up again, like a winged thing,
And from tree to tree with a vaunting spring;
Then he sits up aloft, and looks waggish and queer,
As if he would say, "Ay, follow me here!"
And then he grows pettish, and stamps his foot;
And then independently cracks his nut.

—*Mary Howitt.*

The Hunted Squirrel.

Then as a nimble squirrel from the wood
Ranging the hedges for his filbert food
Sits pertly on a bough, his brown nuts cracking
And from the shell the sweet white kernel taking;
Till with their crooks and bags a sort of boys
To share with him come with so great a noise
That he is forced to leave a nut nigh broke,
And for his life leap to a neighbor oak,
Thence to a beech, thence to a row of ashes;
Whilst through the quagmires and red water plashes
The boys run dabbing through thick and thin.
One tears his hose, another breaks his shin;
This, torn and tattered, hath with much ado
Got by the briars; and that hath lost his shoe;
This drops his band; that headlong falls for haste;
Another cries behind for being last;
With sticks and stones and many a sounding holloa
The little fool with no small sport they follow,
Whilst he from tree to tree, from spray
Gets to the woods and hides him in his dray.

—*William Browne.*



The Squirrels' Party.

DAME Nature said, "Dear leaves, come down,
You are needed now in Squirrel Town!"
But each bright leaf just shook its head,
"We'd rather stay up here," they said!
Then Nature said, "Oh come, wind, blow!
For winter soon will bring the snow,
And if no leaves fall down, alas,
Who then will cover up my grass?"
Stronger and stronger came the breeze,
Down fell the pretty, dancing leaves.
And they said, "It is fun to be flying down,
We will carpet all of Squirrel Town!"
So away and away and away they flew—
Where some of them went to, nobody knew!
The Squirrels chattered with glee when they found
A nice red carpet spread on the ground!
Then again they chattered and said, "Heigho!
We'll give a party before there's snow!"
The leaves made a carpet warm and bright,
Down, down, down they fell all night.
Then came flakes of feathery white,
And the squirrels chattered, "good night, good night!"

—*Laura R. Smith.*

BLACKBOARD LESSON.

Tea.

I. FAMILY—Allied to Camellia.

II. SPECIES.

- 1. Several (Ranging from 4 ft. to 30 ft. in height).
  - A. Tea shrub or Chinese tea (Most important).

III. DESCRIPTION.

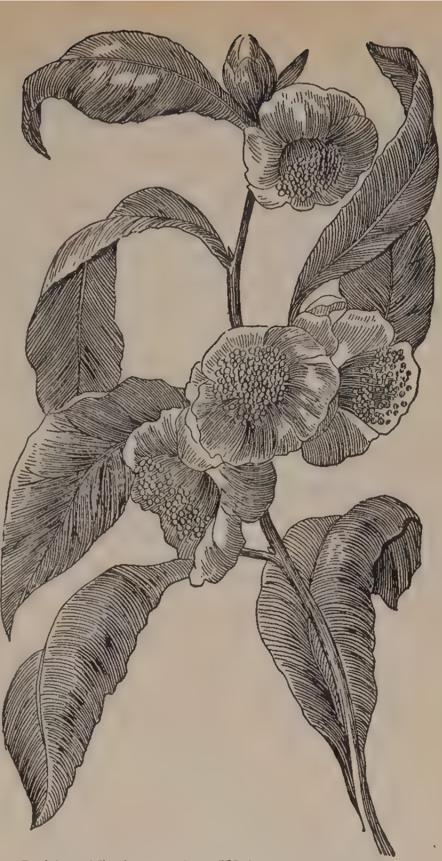
- 1. Shrub.
  - A. Height.
    - (a) Wild state (20 ft. to 30 ft.).
    - (b) Cultivated for commerce (5 ft. to 6 ft.).
  - B. Leaves.
    - (a) Length (2 in. to 6 in.).
    - (b) Shape (Lanceolate).
  - C. Flowers.
    - (a) Color (White).

IV. PROPAGATION.

- 1. From seed.
- 2. Ready for picking (3 years of age).
- 3. Best results secured (8 years to 10 years of age).

V. DISTRIBUTION.

- 1. Range (From 39° north, in Japan, to regions south of Equator); Java, Australia, South Africa, Southern Brazil.
- 2. United States—South of line extending from California to South Carolina.



LEAVES AND FLOWERS OF TEA.

VI. HARVESTING.

- 1. Leaves picked by hand.
- 2. First crop gathered in April.
- 3. Second crop gathered a month later (Most valuable).
  - A. Different grades.
    - (a) Hyson (Spring crop).
    - (b) Pouncho ng (Wrapped tea).
    - (c) Souchong (Small kind).
- 4. Process of curing.
  - A. Green Tea.
    - (a) Made by drying leaves quickly in pan immediately after picking.
    - (b) Rolled on table.
    - (c) Dried a second time.
    - (d) Varieties.
      - Hyson.
      - Young Hyson.
      - Hyson Skin.
      - Gun Powder.
      - Imperial.
      - Caper.
  - B. Black Tea.
    - (a) Drying leaves in shallow baskets.
    - (b) Saccharine fermentation.
    - (c) Roasted in iron vessel.
    - (d) Dried over charcoal fire.
    - (e) Varieties.
      - Pekoe.
      - Flowery Pekoe.
      - Orange Pekoe.
      - Pekoe Souchong.
      - Congon.
      - Bohea.
      - Souchong.

VII. HISTORY.

- 1. Discovered by Chinese in 2737 B. C.
- 2. Carried to Japan in 13th century.
- 3. Dutch established plantation in Java in 1825.

4. Later established in Ceylon, West Indies, South America, Australia, Southern Europe.

VIII. CONSTITUENTS.

1. Volatile oil, theine, tannin, albuminoids.
2. Soluble mineral matter (Phosphoric acid and potash).

Tea in Literature.

Love and scandal are the best sweeteners of tea.
—*Fielding.*

The gentle fair on nervous tea relies,
Whilst gay good-nature sparkles in her eyes;
An inoffensive scandal fluttering round,
Too rough to tickle, and too light to wound.
—*Crabbe.*

Tea! thou soft, thou sober sage, and venerable liquid;—thou female tongue-running, smile-soothing, heart-opening, wink-tippling cordial, to whose glorious insipidity I owe the happiest moments of my life, let me fall prostrate.

—*Cibber.*

Questions on Tea.

What is the height of the tea plant? 2829.

What is the most important species of the tea shrub or tree?

What is its height in cultivation?

What is the length of the leaves? What is the color of the flower?

How is it propagated? 2829.

How old must it be before the leaves are picked?

At what age does the tea plant yield the best?

What can you say of the tea as to its climatic range?

What grain covers a wider scope?

Why is it not raised in the United States, although the climate is favorable?

In what states is the tea plant grown with profit?

What countries produce the greatest amount of tea?

How are the leaves gathered?

When is the first crop picked?

How long before the second crop is picked?

How many crops are picked in a year?

Which crop is the most valuable?

What is Hyson tea? When is it picked?

Are black and green tea both secured from the same plant?

Tell how green tea is made. How black tea is made.

What are some of the kinds of green tea?

How is tea adulterated?

May all the grades of tea be prepared from the same plant?

How is tea classified as to its flavor and who are employed for that purpose?

What is the active principal of tea?

To whom do Chinese writers ascribe the discovery of the virtues of tea and when did he reign?

Woodpecker.

I. ORDER—Picariae.
II. SPECIES (About 350).
III. DESCRIPTION.
  1. Bill—Long, straight, and angular for perforating bark of tree.
  2. Tongue.
    A. Long, slender, and armed with barbed, horny point.
    B. Capable of thrusting tongue out and spearing insects.
    C. Covered with sticky, shiny substance.
  3. Body somewhat slender.
  4. Tail quite stiff (Spine enables them to climb).
  5. Skilled in discovering holes of insects in trees.
  6. Tapping.
  7. Plumage.
    A. Beautiful, usually having bright mark of red, yellow, or green at head and wings.
IV. SPECIES.
  1. Ivory billed.
    A. Length (20 in.).
    B. Alar extent (30 in.).
    C. Color—Black and white; male with bright red crest.
    D. Nest in hollow trees.
  2. Red-headed.
    A. Length (10 in.).
    B. Head—Red.
    C. Found in North America, Atlantic to Rocky Mountains.
  3. California woodpecker.
    A. Food—Acorns.
    B. Found along the Pacific coast.
  4. Sap sucker.
  5. Species native to Europe.
    A. Great spotted woodpecker.
    B. Green woodpecker.
  6. Asiatic hornbill.

The Woodpecker.

"How does he know where to dig his hole,
The woodpecker there, on the elm-tree pole?
How does he know what kind of a limb
To use for a drum or to burrow in?
How does he find where the young grubs grow—
I'd like to know?"

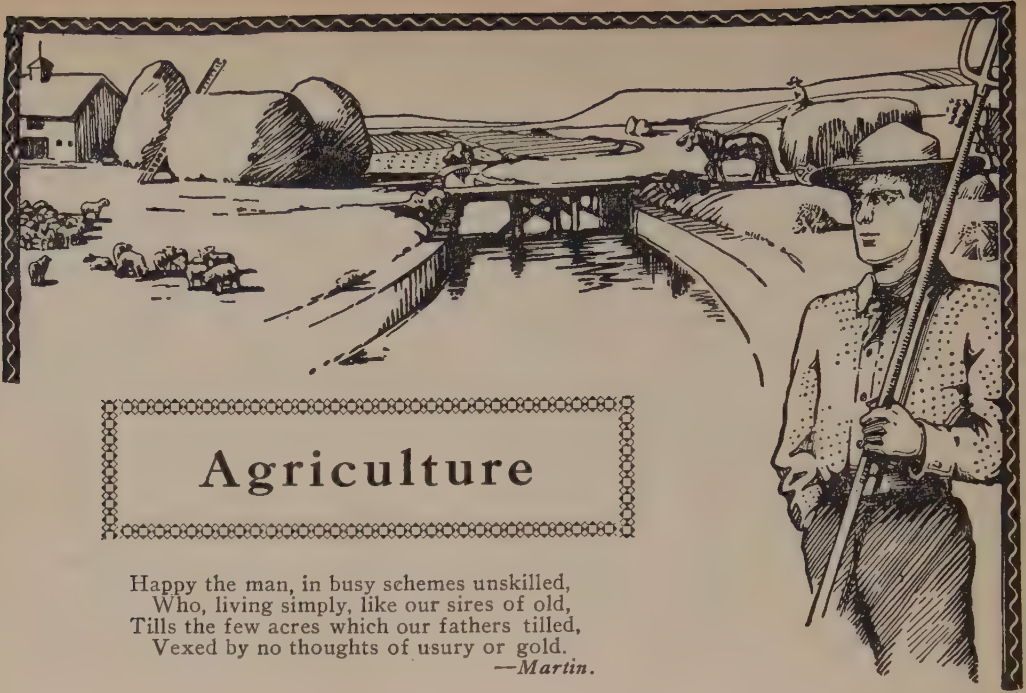
Away to the pear tree, out of sight,
With a cheery call, and a jumping flight!
He hopped around until he found a stub,
"Ah, here's the place to look for a grub!
'Tis moist and dead—rrrrr rub-dub-dub.'

"I see," said the boy. "Just a rap or two,
Then listen as any bright boy might do.
You can tell ripe melons and garden stuff
In the very same way—It's easy enough."

—*William J. Long.*

Questions on the Woodpecker.

Why is the woodpecker so named? 3179.
Is it a bird of beautiful plumage?
To what division of birds does it belong? 298.
What species of woodpecker is found on the Pacific coast?
Where are the nests usually built? How many eggs are laid?
In what way is the horny point of the tongue an advantage?
Name and describe five species of woodpeckers.
What causes the woodpecker to make a tapping noise in the forest?
What species of woodpecker is found most commonly in North America?



Agriculture

> Happy the man, in busy schemes unskilled,
> Who, living simply, like our sires of old,
> Tills the few acres which our fathers tilled,
> Vexed by no thoughts of usury or gold.
> —*Martin.*

THE cultivation of useful plants as a means of supplying the needs and luxuries of mankind is the oldest and one of the most important occupations. Indeed, land is the source of all wealth and its care and cultivation constitute important enterprises. The field, the garden, and the forest are the three divisions in which agricultural labor is done, giving rise to the arts of *agriculture, horticulture,* and *forestry.* Modern farming, as it is managed at present, includes two general divisions, those of *plant production* and of *animal raising.*

Agriculture is fundamentally utilitarian, since the products as an aggregate supply human wants. On the other hand, horticulture yields a large quantity of luxuries, although the raising of vegetables, which is properly a branch of horticulture, is concerned very largely with supplying materials for the table. Horticulture and forestry, although distinctive arts, become closely related in *landscape gardening* and *arboriculture.*

Although much advancement has been made in modern farming, this enterprise does not represent a radical departure from the best practice of agricultural arts and stock raising in the earlier times. However, the principles which underlie successful method are better understood at present and the farmer is able to profit from the experience of others. The soil is the laboratory of the farmer. He must necessarily study the constituents of the soil so he may know how to treat it and what classes of plants to cultivate. This has become possible through the greater intelligence of the agriculturists and the valuable assistance furnished by the government and through agricultural schools and periodicals.

This text and outline of study is recommended as a work of reference in studing the arts of agriculture, horticulture, and forestry. It contains practical suggestions and a wide fund of information on these topics. The reader should consult articles under the titles of Agriculture, Agricultural Education, Corn, Elevator, Forestry, Irrigation, Milk, Soil, Swine, Turkey, and hundreds of others. The titles especially outlined in this book suggest innumerable correlated topics which are of relative importance to the student of agricultural arts.

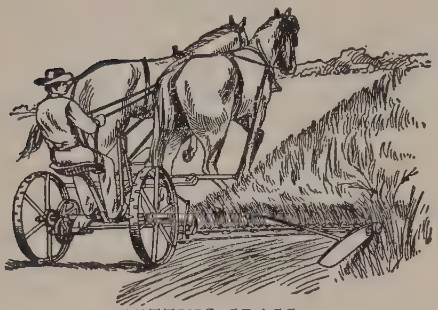
Education in Agriculture.

- I. AGRICULTURAL EDUCATION.
  - 1. History.
    - A. Dates from antiquity.
    - B. Early schools — Studied agriculture alone.
    - C. Schools.
      - a. England—near Cirencester.
      - b. Germany—Berlin.
      - c. Canada — Guelph, New Brunswick, Quebec, Manitoba, etc.
      - d. Australia — Richmond, Gatton, Dookie.
      - e. United States—National and State (One in each).
      - f. Societies.
        - 1. Farmers' Institutes.
        - 2. Farmers' Organizations.
- II. DEPARTMENT OF AGRICULTURE.
  - 1. When organized.
  - 2. Chief officer.
  - 3. Reports.
  - 4. Objects.
  - 5. Literature—Library, periodicals, *Year Book.*
  - 6. Bureaus—Soil, Chemistry, Animal industry, Weather, etc.
- III. EXPERIMENT STATION.
  - 1. What is it.
  - 2. Purposes.
  - 3. Principal stations — Canada, England, United States.
  - 4. Grants and appropriations.
  - 5. Administration.
  - 6. Bulletins.
  - 7. Means of promoting interest.

Outline in Agriculture.

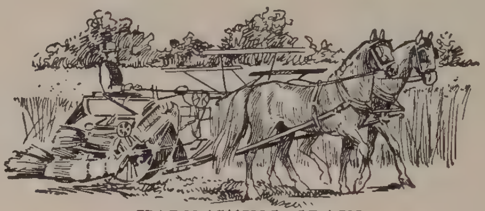
- I. FARMING.
  - 1. Location.
    - A. As to climatic conditions.
      - 1. Amount and distribution of heat and moisture.
      - 2. Length of season and character of same.
      - 3. Nature of changes—Sudden, gradual, etc.
      - 4. Drainage.
    - B. As to character of land.
      - 1. Highland or lowland.
      - 2. Level or rolling land.
      - 3. Prairie or timbered land.
      - 4. Fertile or sterile land.
    - C. As to nature of the soil.
      - 1. Origin and formation.
      - 2. Nature and composition.
      - 3. Kinds, etc.
    - D. As to accessibility to market.
  - 2. Making the farm.
    - A. In timbered land.
    - B. In prairie land.
    - C. Nature and extent of work required in each case.
    - D. Relative value of the farms.
    - E. Fertilization.
    - F. Irrigation.
  - 3. Divisions of the farm.
    - A. Tillable land.
      - 1. Field, meadow.
      - 2. Garden, orchard, and vineyard.
    - B. Pasture land.
    - C. Relative proportion of each.
    - D. Nature and use of each.
  - 4. Location of buildings.
    - A. The dwelling.
      - 1. In reference to pasture, fields, garden, orchard.
      - 2. Accessibility to road.
    - B. The barn.
      - 1. In reference to dwelling and pasture.
    - C. The granary.
      - 1. In reference to safety and accessibility to fields.

D. The wood and coal house.
1. In reference to dwelling.
E. Chicken house.
F. Meat house.
G. Milk house (dairy).
H. Tool and implement house (Here draw a plan of farm, locating the pasture, fields, meadow, garden, orchard, vineyard, and the different buildings).
A model farm.



CUTTING GRASS.

5. Products of the farm.
A. Cereals—Corn, wheat, oats, rye, flax.
B. Grasses—Timothy, alfalfa, clover, etc.
C. Fruits — Apples, peaches, pears, plums, apricots, etc.
D. Garden vegetables—Beans, peas, potatoes, onions, tomatoes, cucumbers.
E. Products of the vineyard—Grapes, berries, etc.
F. Planting—Cultivating, harvesting, and marketing each.
6. Implements used in farming.
A. The plow, breaking plow, cultivating plow—Use of.
B. The harrow, the roller—Use of each.
C. The planter, the drill—Use of each.
D. The mower, the reaper—Use of each.
E. The thrasher, the stacker—Use of each.
F. The wagon—Use.
G. The hoe and rake—Use of each.
Field lesson — Visit an implement house. Get pictures of the different implements.
7. Animals used in farming.
Beasts of burden.
A. The ox.
B. The horse.
C. The mule.
Fowls.
A. Chicken.
B. Duck.
C. Turkey.
D. Guinea.
E. Goose.
Used for food and clothing.



HARVESTING GRAIN.

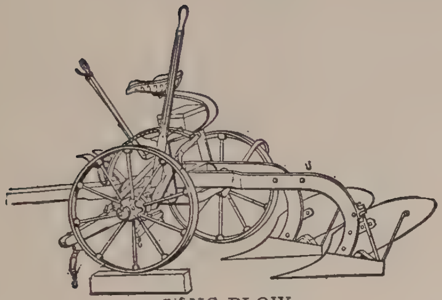
A. The cow.
B. The sheep.
C. The hog.
D. Goats.
8. Kinds of farms.
A. Grain farms.
B. Grass farms.
C. Fruit farms.
D. Dairy farms.
E. Stock farms.
F. Garden farms.
G. Poultry farms.

II. STOCK RAISING.
1. Stock farm.
A. Special features.
1. Water.
2. Grass.
B. Difference and similarity to other farms.
1. Character of the land.
2. Divisions of farm.
C. Extent and size.
1. Depends upon number and kind of stock.
2. Depends upon nature of soil and kind of land.
D. Division and arrangement.
1. Pastures.

2. Meadows.
3. Fields.
4. Feed lots.
5. Location of each division with reference to the other.

E. Caring for the farm.
  1. Kind of work.
  2. Extent of work.

2. Kinds of stock.
  A. Horses.
    1. As to use—Draft, roadster, race, saddle, buggy and ponies.
    2. As to breeds—Common and fine breeds.
  B. Mules.
    1. As to use—Draft, roadster, and saddle.
    2. As to breeds—Common and fine.
  C. Cattle.
    1. As to use—Draft, beef, and milkers.
    2. As to breeds—Common and fine.



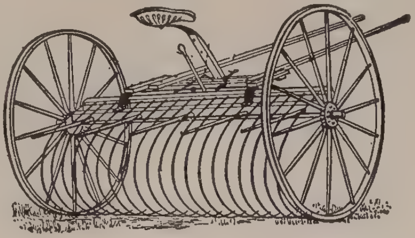
GANG PLOW.

  D. Hogs.
    1. As to use—Meat, feeders, and stockers.
    2. As to breeds—Common and fine.
  E. Sheep.
    1. As to use — Clothing and food—mutton.
    2. As to breeds—Common and fine.
  F. Goats.
    1. As to use—Food and clothing.
    2. As to breeds—Common and fine.
  G. Common fowls.
    1. Chicken.
    2. Geese.
    3. Turkeys.
    4. Ducks.
    5. Guineas.
    6. Kinds and use of each.

3. Caring for the stock.
  A. Pasturing.
  B. Making provisions for watering—Ponds, creeks, wells.
  C. Feeding — Kinds of food for each.
  D. Housing or sheltering.

4. Marketing the stock.
  A. When—The season of the year.
  B. How done.
  C. Shipping.

III. FARMING SECTIONS.
  A. 1. Make a study of your State or Province.
    2. United States.
    3. Canada, Mexico, and Central America.



HAY RAKE.

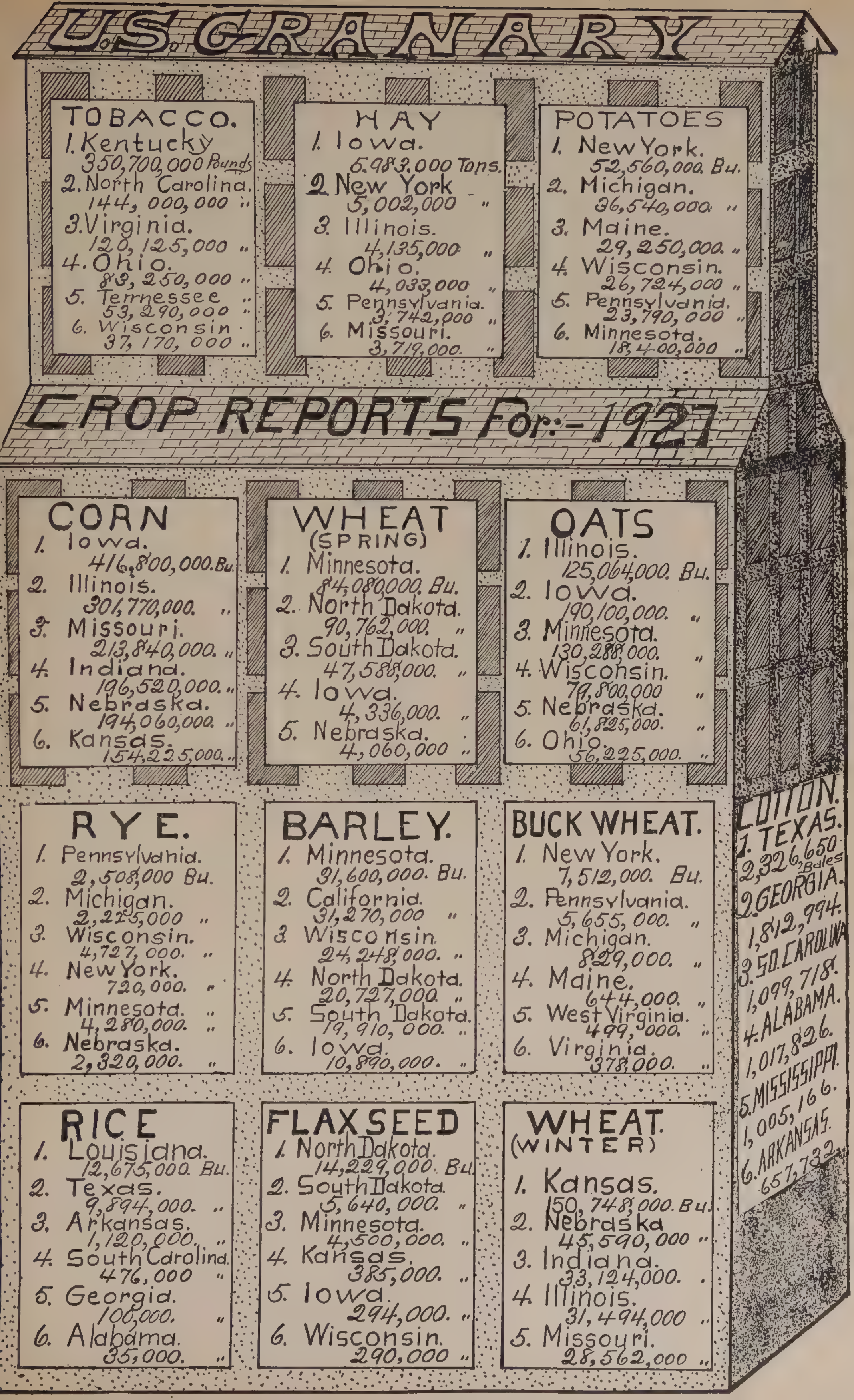
    4. Draw maps and locate on them the farming sections.
    5. Tell what is grown in these sections.
    6. Name and locate the great markets of each section.
    7. Amount of production.
  B. 1. Make a study of South America in a similar manner (Use outline under A).
    2. Compare farming belts of South America with those of North America as to extent and amount of production.
  C. 1. Study Europe by outline under A (4, 5, 6 and 7).
    2. Compare with North America and South America as to the extent of farming belts and the amount of production.
  D. 1. Study Asia, Africa, and Australia in a similar manner.
    2. Compare with other continents as to extent and production.
  E. 1. Study the islands of the sea—Japan, Philippines, Cuba.

IV. STOCK-RAISING SECTIONS.
A. 1. United States and Canada.
2. Other countries of North America.
3. Location and extent.
4. Kind and number of stock.
5. Stock markets—Locate and name them and give to what extent engaged in buying and selling and shipping stock.
6. Different stock markets.
1. Cattle market.
2. Hog market.
3. Sheep and goat market.
4. Horse and mule market.
5. Poultry market.
B. 1. Make a study of South America, Europe, Asia, Africa, and Australia, in a similar manner.
2. Compare with North America as the number and kind of stock bought, sold, and shipped.
V. TYPE STUDIES.
1. Vegetable origin.
A. Wheat, corn, rice, flax, cotton.
B. Apple, peach, pear, plum, apricot, banana, orange, lemon.
C. Beans, peas, potatoes, tomatoes, cabbage.
2. A. Preparation of ground.
B. Planting.
C. Cultivating.
D. Harvesting.
E. Marketing.
F. Amount of production.
3. Animal origin.
A. Cattle.
B. Hogs.
C. Sheep.
D. Goats.
E. Horses and mules.
F. Silk.
4. A. Raising.
B. Feeding and housing.
C. Preparing for market.
D. Marketing.
E. Shipping.
F. Use.
G. Amount.

The final thought: The world is a great farm.

Subjects for Study.

Adulteration.
Agrarian Law.
Agricultural Education.
Agriculture.
Animal.
Animal Intelligence.
Architecture.
Atmosphere.
Barometer.
Bean.
Bee.
Beer.
Beet.
Birds.
Bread.
Breeding.
Brick.
Butter.
Cattle.
Climate.
Cheese.
Clover.
Commerce.
Cream.
Dairying.
Dehorning.
Dog.
Earthworm.
Education.
Egg.
Ensilage.
Farmers' Institute.
Fence.
Fertilizers.
Floriculture.
Food.
Flour.
Forest.
Germination.
Grafting.
Grape.
Grass.
Guano.
Harvesting Machinery.
Horse.
Horticulture.
Insects.
Insurance.
Labor.
Land.
Lumber.
Milk.
Oats.
Parasites.
Polder.
Political Economy.
Potato.
Poultry.
Rent.
Sewage.
Sheep.
Soil.
Sugar.
Swine.
Tariff.
Tax.
Technical Education.
Telephone.
Tobacco.
Weeds.
Wire.
Wool.



U.S. GRANARY

TOBACCO.
1. Kentucky 350,700,000 Pounds
2. North Carolina. 144,000,000 "
3. Virginia. 120,125,000 "
4. Ohio. 83,250,000 "
5. Tennessee 53,290,000 "
6. Wisconsin 37,170,000 "

HAY
1. Iowa. 5,983,000 Tons.
2. New York 5,002,000 "
3. Illinois. 4,135,000 "
4. Ohio. 4,033,000 "
5. Pennsylvania. 3,742,000 "
6. Missouri. 3,719,000. "

POTATOES
1. New York. 52,560,000. Bu.
2. Michigan. 36,540,000. "
3. Maine. 29,250,000. "
4. Wisconsin. 26,724,000 "
5. Pennsylvania. 23,790,000 "
6. Minnesota. 18,400,000 "

CROP REPORTS For:-1927

CORN
1. Iowa. 416,800,000. Bu.
2. Illinois. 301,770,000. "
3. Missouri. 213,840,000. "
4. Indiana. 196,520,000. "
5. Nebraska. 194,060,000. "
6. Kansas. 154,225,000. "

WHEAT (SPRING)
1. Minnesota. 84,080,000. Bu.
2. North Dakota. 90,762,000. "
3. South Dakota. 47,588,000. "
4. Iowa. 4,336,000. "
5. Nebraska. 4,060,000 "

OATS
1. Illinois. 125,064,000. Bu.
2. Iowa. 190,100,000. "
3. Minnesota. 130,288,000. "
4. Wisconsin. 79,800,000 "
5. Nebraska. 61,825,000. "
6. Ohio. 56,225,000. "

COTTON.
1. TEXAS. 2,326,650 Bales
2. GEORGIA. 1,812,994.
3. SO. CAROLINA 1,099,718.
4. ALABAMA. 1,017,826.
5. MISSISSIPPI. 1,005,166.
6. ARKANSAS. 657,732.

RYE.
1. Pennsylvania. 2,508,000 Bu.
2. Michigan. 2,225,000 "
3. Wisconsin. 4,727,000. "
4. New York. 720,000. "
5. Minnesota. 4,280,000. "
6. Nebraska. 2,320,000. "

BARLEY.
1. Minnesota. 31,600,000. Bu.
2. California. 31,270,000 "
3. Wisconsin. 24,248,000. "
4. North Dakota. 20,727,000. "
5. South Dakota. 19,910,000. "
6. Iowa. 10,890,000. "

BUCK WHEAT.
1. New York. 7,512,000. Bu.
2. Pennsylvania. 5,655,000. "
3. Michigan. 829,000. "
4. Maine. 644,000. "
5. West Virginia. 499,000. "
6. Virginia. 378,000. "

RICE
1. Louisiana. 12,675,000. Bu.
2. Texas. 9,894,000. "
3. Arkansas. 1,120,000. "
4. South Carolina. 476,000 "
5. Georgia. 100,000. "
6. Alabama. 35,000. "

FLAXSEED
1. North Dakota. 14,229,000. Bu.
2. South Dakota. 5,640,000. "
3. Minnesota. 4,500,000. "
4. Kansas. 385,000. "
5. Iowa. 294,000. "
6. Wisconsin. 290,000 "

WHEAT. (WINTER)
1. Kansas. 150,748,000. Bu.
2. Nebraska 45,590,000 "
3. Indiana. 33,124,000. "
4. Illinois. 31,494,000 "
5. Missouri. 28,562,000 "

Questions on Agriculture.

How does agriculture rank among the world's occupations?

When and where was the first college of agriculture established? Who was its leader? 37.

When was the Department of Agriculture organized? What is the "Year Book?" 40.

Name the chief benefits of Agricultural Experiment Stations. How are they managed?

Give a list of the principal courses pursued in agricultural schools. Locate the leading schools of this kind in Canada.

What are the chief farm implements used? Describe some of the latest inventions in farm machinery.

State the benefits of scientific farming on small farms. Compare the present size and number of farms with those of earlier days.

Give some strong points in regard to selecting a location for a profitable farm home.

State some means of fertilizing soil. Explain what is meant by "rotation of crops" and "specializing" in farming.

Name the pests and dangers to which the following are subject and give remedy for each: wheat, cotton, potatoes, squashes, apples, cabbage, gooseberries and cherries.

Why is seed selecting so important? How has the government aided the farmer in this respect?

What is floriculture? Grafting? Pruning? Rust? Smut? Nicotine? Vegetable? Blight?

By naming a dozen or more staple articles of food endeavor to show the extent of our dependence upon the farmer.

What are the chief animals used in farming? Name ten useful animal products.

Locate the best farming regions of Canada. Name some of its leading exports.

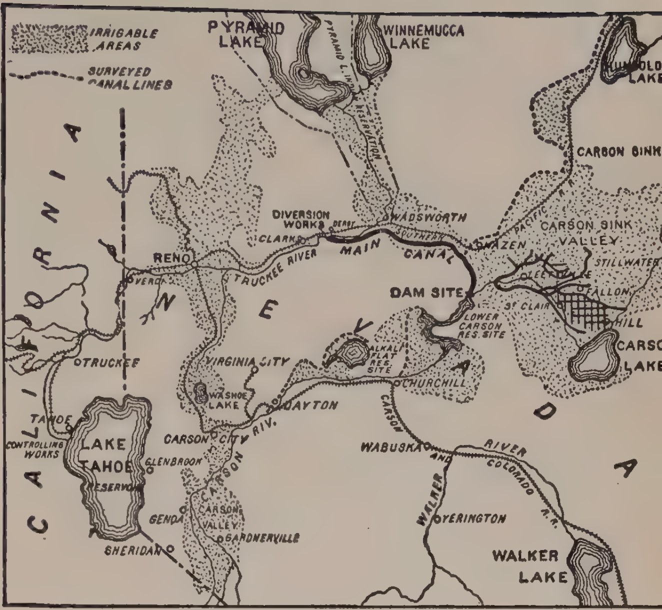
For what crops are the following noted: Kansas, Minnesota, Ontario, Washington, British Columbia, Georgia, and Colorado?

Who was Burbank and what special improvements has he made in plant life? What flower is named after him? 406.

Irrigation.

I. OBJECT—To produce or increase fertility.
II. HISTORY—Ancient and modern.
III. IRRIGATION contrasted with dry farming.
IV. NECESSARY DEPENDENCE.
    1. Soil.
    2. Crops grown.
    3. Amount of evaporation.
    4. Season and distribution of rainfall.
V. METHODS AND MEANS.
    1. Sources of supply.
        A. Rivers.
        B. Lakes.
        C. Springs.
        D. Artesian wells.
        E. Freshets.
        F. Melting snows.
    2. How reserved—Dams and reservoirs.
    3. Means of distribution—Canals and ditches.
    4. Forced into channels as needed by pumps, windmills, or machinery.
    5. Inundation system used in the South for rice fields and cranberries.

VI. WHERE CARRIED ON.
  1. Egypt.
    A. When.
    B. Source of water supply.
    C. Extent of arid region.
    D. Method of irrigating.
    E. Benefit—Number of crops, etc.
    F. Assuan dam.
  2. Asia—Persia, India, China, etc.
  3. Europe—Italy, Spain, France, etc
  4. America—New Mexico, Arizona, Alberta, California, Utah, Oregon, Georgia, etc.
VII. STATISTICS.
  1. Extent of arid regions.
  2. Amount of reclaimed lands.
  3. Value of irrigated lands.
VIII. RECLAMATION ACT.
  1. When passed.
  2. Purpose.
  3. Benefits derived.
  4. Truckee-Carson system.
    A. States affected.
    B. Canals.
    C. Extent of distribution.


IRRIGABLE AREAS
SURVEYED CANAL LINES
PYRAMID LAKE
WINNEMUCCA LAKE
CARSON SINK
DIVERSION WORKS
CLARK
WADSWORTH
MAIN CANAL
CARSON SINK VALLEY
STILLWATER
RENO
VERDI
TRUCKEE RIVER
DAM SITE
LOWER CARSON RES. SITE
ST CLAIR
FALLON
CARSON LAKE
NEVADA
CALIFORNIA
TRUCKEE
VIRGINIA CITY
WASHOE LAKE
ALKALI FLAT RES. SITE
CHURCHILL
DAYTON
TAHOE
CONTROLLING WORKS
LAKE TAHOE
RESERVOIR
CARSON CITY
CARSON RIV.
GLENBROOK
WABUSKA
CARSON
WALKER
RIVER
CARSON AND COLORADO R.R.
GENOA
CARSON VALLEY
GARDNERVILLE
SHERIDAN
YERINGTON
WALKER LAKE

TRUCKEE-CARSON IRRIGATION SYSTEM IN NEVADA.

Questions on Irrigation.

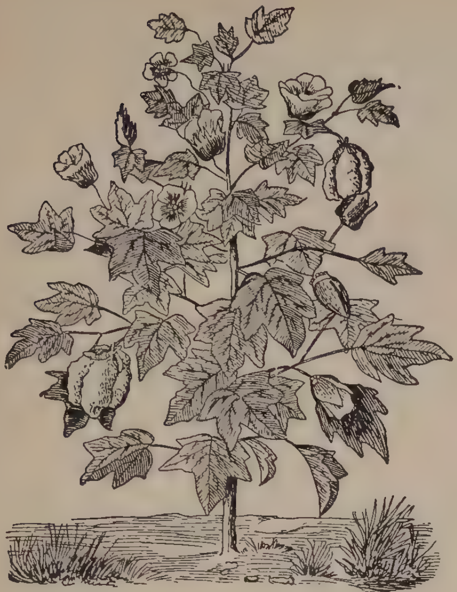
Define irrigation. 1413.
What are its chief purposes?
Upon what does the necessity of irrigation depend?
What two things greatly determine the value of irrigated land?
Name some eastern countries where irrigation is carried on most extensively.
In what sections of North America are traces of irrigation by prehistoric peoples?
How do present methods compare with the ancient? State some changes.
Where are the greatest arid regions of the United States? Which State has the largest amount of reclaimed land? 1414.
How has irrigation aided in populating the western states?
Where is the largest irrigated area in the world?
Describe the Assuan dam of Egypt.
What was the Reclamation Act? What land has been especially benefited thereby?
Describe the Truckee-Carson system.
State some of the chief benefits irrigation has produced in America.

Blessings of the Rain.

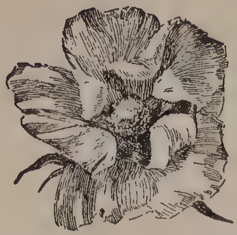
When the blacken'ng clouds in sprinkling showers
Distill, from the high summits down the rain
Runs trickling, with the fertile moisture cheer'd,
The orchards smile, joyous the farmers see
Their thriving plants, and bless the heavenly dew.
—*Philip.*

Cotton.

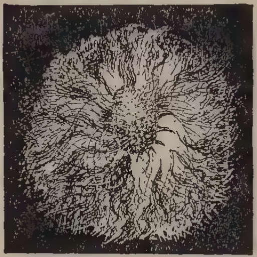
I. GENUS—GOSSYPIUM.
II. DESCRIPTION.
   1. Shrublike.
   2. Lobed leaves.
   3. Flowers, yellowish (like hollyhock).
      A. Celled capsule which bursts open when ripe (Bell).
      B. Black seeds covered with cellular fibers.
   4. Leaves—Dark green with blue veins.
III. SPECIES (Several).
   1. Short fiber, or upland.
   2. Long fiber, or Sea Island (Southern States).
IV. CULTIVATION.
   1. Planted in fields like corn.
   2. Preparation of ground (Plowed in spring).
   3. Drilling of seeds (Rows 3 ft. apart).
   4. Plants appear above ground in 8 days.
   5. Plants cultivated 3 times.
   6. Seeds ripened in 70 days.
V. GATHERING OR HARVESTING.
   1. Bursting of pods or bolls.
   2. Picked by hand. All not ripe at once.
   3. Sent to gin house (Separated from seed).
   4. Pressed in bales of 500 lbs.
   5. Bales bound ready for shipment.
VI. PRODUCTS.
   1. Raw material made into cotton cloth.
   2. Cotton stalks—manufacture of pulp.
   3. Cotton-seed oil.
      A. Food.
      B. Lard and butter.
      C. Food for animals.
VII. WHERE GROWN.
   1. Native to tropical regions.
      A. Cultivated between latitudes 35 degrees north and 35 degrees south
   2. Southern States.
      A. Texas (Leading).
      B. Mississippi.
      C. Georgia.
      D. Alabama, North Carolina, Louisiana, Arkansas.
   3. Egypt.
   4. Russia.
   5. China, Brazil, Mexico, West Indies, Asiatic islands of the Pacific Ocean.
VIII. HISTORY.
   1. Writings of Herodotus.
   2. Mentioned by Aristobulus (Alexander's general).
   3. Arabians made cotton cloth in 627 A. D.
   4. Introduced into Italy 14th century.
   5. Mentioned in English history, 1436.
   6. Made into cloth in 1736 by Louis Paul.
   7. Native of West Indies and South America.
   8. Cotton seed brought to Georgia, 1786.
   9. First cotton mill (Beverly, Mass.).
   10. Invention of cotton gin, 1793.
IX. ANNUAL OUTPUT.
   1. United States (13,500,000 bales) 52% per cent. of world's crop.
   2. World's output (24,942,500 bales) 1925.



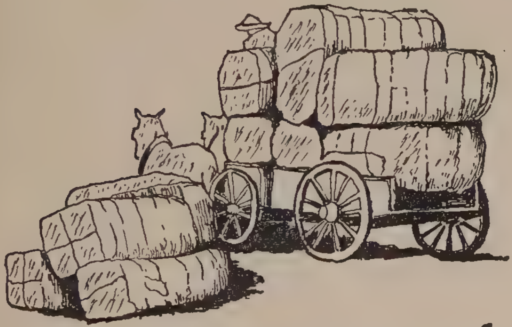
Cotton Plant.



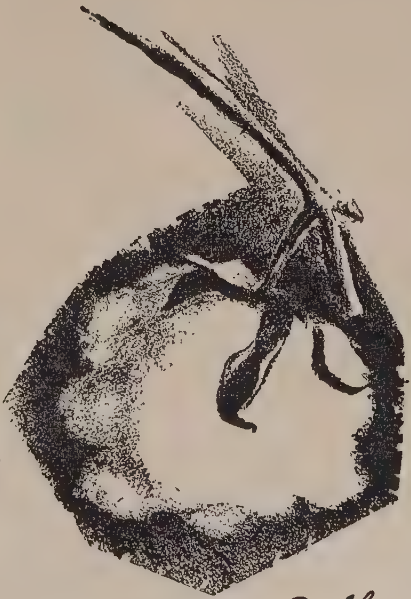
Flower (Enlarged).



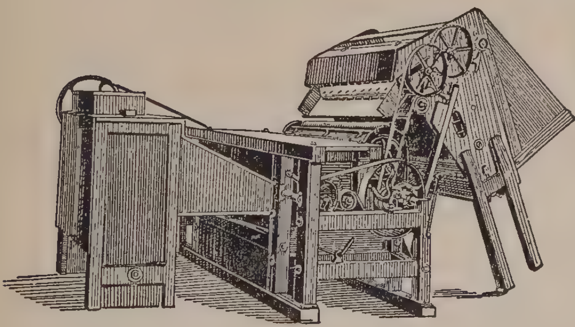
Seed with Fibers.



Hauling Bales to the Market.



Cotton Boll.



Cotton Gin with Feeder.

BLACKBOARD LESSON.

X. ENEMIES.
- 1. Boll moth.
    - A. Deposits eggs under leaves.
- 2. Boll worm (Larva of boll moth).
- 3. Boll weevil.
    - A. Beetle with elongated head.
- 4. Red bug.
    - A. Suctorial.

The Cotton Plant.

Sing, Oh! sing for the Cotton Plant!
  Bravely may it grow,
Bearing in its seeded pod
  Cotton white as snow.

Spin the Cotton into thread;
  Weave it in the loom;
Wear it now, dear little child,
  In your happy home.

When you've worn it long and well,
  Will it worthless be?
No, a book made from the dress
  You yet, in time, may see.

Sort the rags and grind the pulp;
  Weave the paper fair;
Now it only waits for words
  To be printed there.

May ten thousand Cotton Plants
  Spring up, fresh and fair,
That words of wisdom and of love,
  O'er all the world shall bear.

—Selected.

Questions on Cotton.

The cotton belt covers how wide a belt north and south of the Equator?

Name two of the principal varieties of cotton. 687.

Which is the better quality?

What can you say about the manufacture of cotton goods by the Arabians in early times?

When was the culture of cotton commenced in Italy?

When was the first cotton mill in America erected? Where?

When was cotton seed first brought into Georgia?

When was the manufacture of cotton into cloth by means of machinery begun?

How many million bales are produced annually in the United States?

How is cotton baled and what is the average weight per bale?

How is cotton cultivated?

When is the ground plowed? How are the seeds planted?

How many times must it be cultivated and weeded?

Should it be cultivated after the plants flower?

About how many days after maturity should cotton be gathered and why?

Why must cotton be picked by hand?

What effect did the invention of the cotton gin have upon the production of cotton?

Name six of the leading cotton states.

Tell who invented the spinning gin and the power loom.

To what countries is the greater part of our raw cotton exported?

What use is made of the cotton stalks?

From what part of the cotton is cotton oil manufactured?

What is cotton-seed cake and for what is it used?

Name four articles made from cotton.

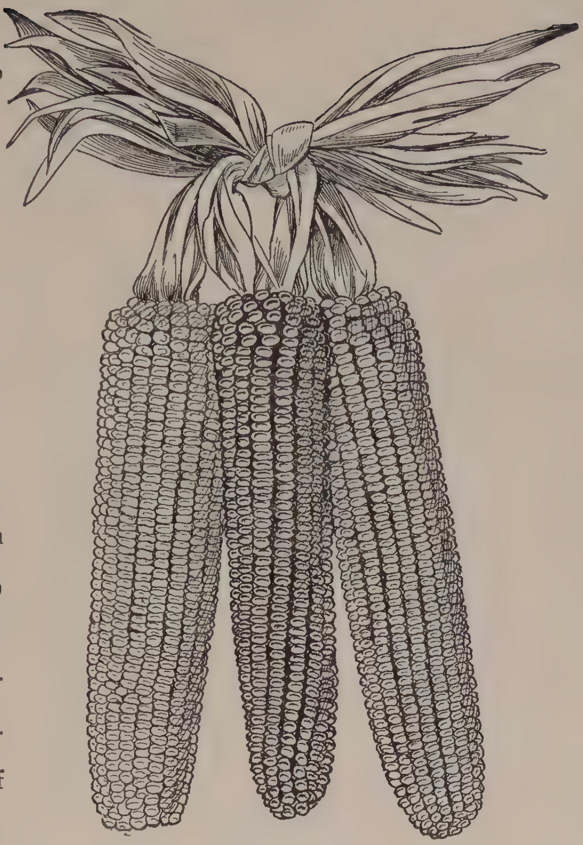
Where does the cotton boll moth lay its eggs?

Where does the boll weevel lay its eggs?

In what way does the red bug or cotton stainer injure the cotton?

Which is the more valuable, cotton crops or the wheat crops of the United States?

Corn.



DENT CORN.

I. HISTORY.
1. Where first known.
2. Native to what country.
3. By whom introduced into Europe.

II. KINDS.
1. Dent.
2. Sweet corn.
3. Popcorn.
4. Flint.

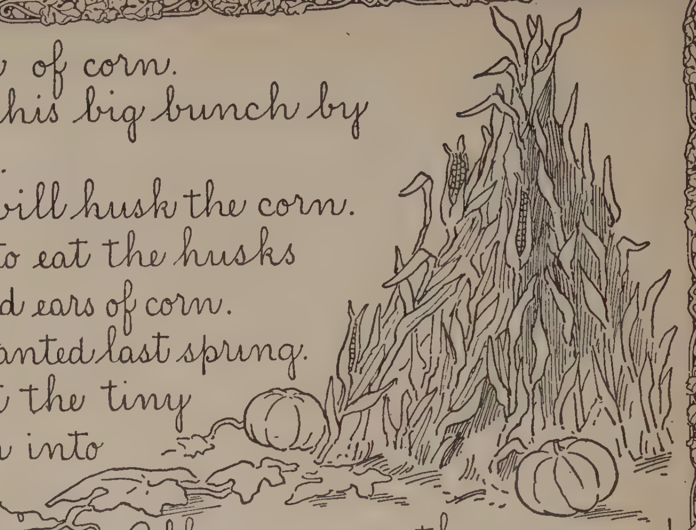
III. DESCRIPTION.
1. Names.
2. Family.
3. Stem.
   A. Structure.
   B. Height.
   C. Covering.
4. Leaves and silks.
5. Roots.
6. Ears.
   A. Developed within leaf sheaf.
   B. Kernels—18 to 20 in a row.
   C. Color—White, yellow, red, or mixed.

IV. TESTING.
1. Select fully ripened ears.
2. Well-developed ears.
3. Full, straight rows of kernels.
4. Plump, even grains.
5. Plant in box in suitable soil.
6. Watch development of growth, stand, etc.

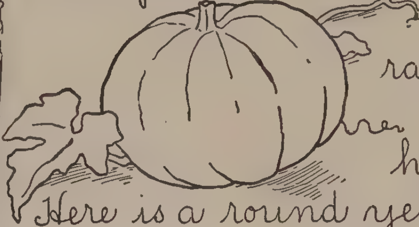
V. PLANTING.
1. Soil—Well-drained, rich, sandy loam.
2. Preparation of ground—Plowed, disced, and harrowed.
3. Time of planting—May 1 to 20.
   Old rule—"Maize should not be planted until the white oak leaves were of the size of a squirrel's ear."
4. How planted.
   A. With corn planter.
   B. 3 or 4 stalks to a hill.
   C. Hills 3½ ft. apart each way.

VI. CULTIVATION.
1. Purpose—To sterilize soil; to promote growth; check weed crop.
2. Machinery used—Cultivator and plow.
3. Process begins—June and lasts about six weeks until plants are too large to escape injury by machines.
4. Cultivated each time at right angles to preceding direction.

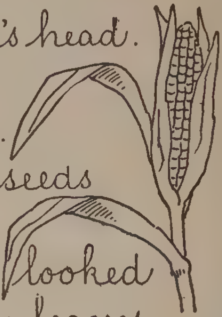
VII. ENEMIES.
1. Larva beetles.
2. Root worm.
3. Cutworm.
4. Chinch bug.
5. Weevil



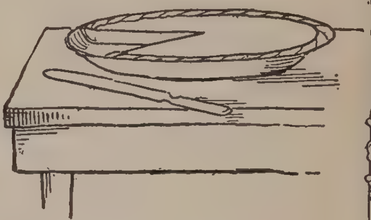
This is a stack of corn.
It was tied in this big bunch by
the farmer.
By and by he will husk the corn.
The cows like to eat the husks
and stalks and ears of corn.
This corn was planted last spring.
The farmer put the tiny
kernels of corn into
the ground.



All summer the sun and
rain helped the corn to grow.
Some of the stalks were
higher than a man's head.



Here is a round yellow pumpkin.
It grew in the field with the corn.
The farmer planted the pumpkin-seeds
beside the hills of corn.
The pumpkin vines and blossoms looked
very pretty under the long shiny corn leaves.
When the pumpkins were ripe they looked like
great golden balls dropped in the fields.
This pumpkin will make a nice pie.
O, here is a pumpkin pie!



I see this pie is cut, and
one piece is gone
I-wonder-who-ate-that-
piece-of-pumpkin-pie!
We have pumpkin pies for Thanksgiving.
Thanksgiving is almost here.

BLACKBOARD LESSON.

VIII. HARVESTING.

1. Sweet corn.
   Use—Canning, drying, roasting ears, etc.
   Gathered when grains begin to glaze.
2. Dent corn.
   Gathered for fodder when grains glaze.
   Also see Ensilage.
   Ripened corn gathered in October and November by husking, then cribbing.
3. Machines used—Corn harvester, shredder, roller, etc.

IX. USES.

1. Food.
   A. Animals.
      a. Whole corn, ground, cracked, fodder, etc.
   B. Mankind.
      a. Meal, hominy, roasting ears, canned, etc.
      b. Manufactured products.
         Starch.
         Liquors.
         Glucose.
         Candy.
         Oil.
         Breakfast foods.
2. Cobs.
   A. Fuel.
   B. Pipes.
   C. Syrup.
3. Husks.
   A. Mattresses.
   B. Mats.
   C. Paper.
   D. Stock.

X. MARKETING.

1. Cribbed.
2. Shelled.
3. Hauled to elevators.
4. Sent to mills.
5. Markets.
   A. Local.
   B. General.
   C. Board of Trade.

XI. CORN LANDS.

1. United States.
   A. Annual production.
   B. Comparative value.
   C. Rank of Mississippi valley as corn-producing region.
   D. Leading corn-producing states — Iowa, Illinois, Kansas, etc.
2. Canada.
   A. Ontario.
      Annual crop.
3. Agricultural countries of Temperate zones.

Questions on Corn.

What is the origin of the name Indian corn?

Describe fully the corn plant. 678.

Tell why and how seed corn should be tested.

Where are the male and the female organs of the corn flower found?

When should it be planted? Give the rule of early days.

Name the different machines used in caring for a crop of corn.

What are the enemies of corn?

Why was popcorn so named?

Name ten products obtained from corn.

To what regions is flint corn especially adapted, and why?

Tell how Indians planted corn and how they prepared it for food.

How does corn compare as a food with other grains?

What nutritive properties are found in corn?

What are the prospects at present in the corn market? What is the price per bushel?

To what animals is corn fed chiefly? What is the fattening quality?

Corn in Literature.

Nor forgotten nor neglected
Was the grave where lay Mondamin
Sleeping in the rain and sunshine.

* * * *

Day by day did Hiawatha
Go to wait and watch beside it;
Till at length a small green feather
From the earth shot slowly upward,
Then another and another,
And before the winter ended
Stood the maize in all its beauty
With its shining robes about it
And its long, soft yellow tresses.

* * * *

And still later, when the autumn
Changed the long green leaves to yellow,
And the soft and juicy kernels
Grew like wampum hard and yellow,
Then the ripened ears he gathered,
Stripped the withered husks from off them,
As he once had stripped the wrestler,
Gave the first Feast of Mondamin,
And made known unto the people
This new gift of the Great Spirit.

—*Longfellow.*

Corn is King.

Upon a hundred thousand plains
Its banners rustle in the breeze,
O'er all the nation's wide domains,
From coast to coast betwixt the seas.

Far back through history's shadowy page
It shines a power of boundless good,
The people's prop from age to age,
The one unfailing wealth of food.

How straight and tall and stately stand
Its serried stalks upright and strong!
How nobly are its outlines planned!
What grace and charm to it belong!

And let the states their garlands bring,
Each its own lovely blossom-sign;
But leading all, let Maize be king,
Holding its place by right divine.

—*Celia Thaxter.*

The Corn Song.

Heap high the farmer's wintry hoard!
Heap high the golden corn!
No richer gift has autumn poured
From out her lavish horn!

Let other lands, exulting, glean
The apple from the pine,
The orange from its glossy green,
The cluster from the vine.

We better love the hardy gift
Our rugged vales bestow,
To cheer us when the storm shall drift
Our harvest fields with snow.

Through vales of grass and meads of flowers
Our plows their furrows made,
While on the hills the sun and showers
Of changeful April played.

We dropped the seed o'er hill and plain
Beneath the sun of May,
And frightened from our sprouting grain
The robber crow away.

All through the long, bright days of June
Its leaves grew green and fair,
And waved in hot midsummer noon
Its soft and yellow hair.

And now with autumn's moonlit eves,
Its harvest time has come,
We pluck away its frosted leaves,
And bear the treasure home.

There, when the snows about us drift,
And winter winds are cold,
Fair hands the broken grain shall sift
And knead its meal of gold.

Let earth withhold her goodly root,
Let mildew blight the rye,
Give to the worm the orchard's fruit,
The wheatfield to the fly.

But let the good old crop adorn
The hills our fathers trod;
Still let us, for his golden corn,
Send up our thanks to God.

—*Whittier.*

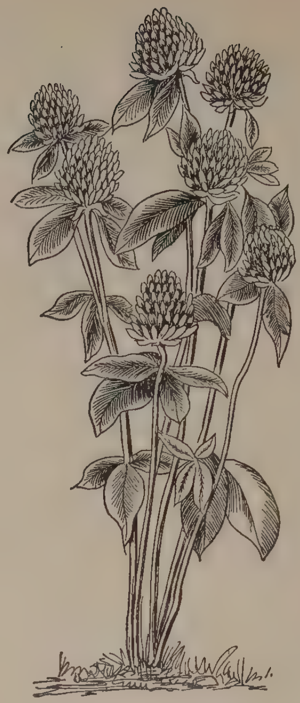
Grass.

Creeping, creeping, here and there,
In fields and meadows, everywhere,
Coming up to greet the Spring,
And hear the robin red-breast sing;
Creeping under children's feet,
Glancing at the violets sweet,
Growing into tiny bowers
For the dainty meadow flowers—
We are small, but think a minute
Of a world with no grass in it.
—*Selected.*

- I. Species—4,500.
- II. Classes.
  - 1. Natural.
  - 2. Artificial.
- III. Propagation.
  - 1. From seed and roots.
  - 2. Sowed broadcast.
  - 3. Annual.
  - 4. Perennial.
- IV. Natural Grasses.
  - 1. Series A.
    - A. Maize or Indian corn.
    - B. Millet (650 species).
    - C. Rice.
    - D. Lemon grass.
    - E. Sorghum.
    - F. Mesquite, etc.
  - 2. Series B.
    - A. Timothy (750 species).
    - B. Oats, wheat, rye, etc.
    - C. Blue grass.
    - D. Bamboo, redtop.
    - E. Canary grass.
    - F. Buffalo grass, etc.
- V. Artificial Grasses.
  - A. Clover.
  - B. Alfalfa.
  - C. Cowpea, etc.
- VI. For What Cultivated.
  - 1. Hay.
  - 2. Pasturage.
  - 3. Seed.
  - 4. Soiling.
- VII. Cultivation of Grasses.
  - A. Distribution.
    - a. All agricultural lands.
    - b. United States.
      - Iowa (First).
      - New York.
      - Kansas.
      - Pennsylvania
      - Missouri.
      - Illinois.
      - Nebraska.
    - c. Canada.
      - Ontario.
      - Manitoba.
      - Quebec.
    - d. Acreage.
    - e. Annual production.
    - f. Value.
  - B. Harvesting.
    - a. Number of crops (Two and sometimes more per season).
    - b. Time.
      - First crop—Early summer.
      - Second crop (Aftermath) —Few weeks later.
    - c. Manner—Machinery.
      - Cut.
      - Cured.
      - Raked.
      - Stacked.
      - Stored, in barns.
      - Baled for transportation.
  - C. Preservation.
    - a. Curing.
      - Cut when in blossom.
      - Exposed to air.
      - Dried in sun.
    - b. Ensilage.
      - Cut just before ripe.
      - Stored in mass in deep trenches.
      - Placed in mow or silo.
  - D. Kinds.
    - 1. Timothy.
      - a. Origin of name.
      - b. Native to Europe.
      - c. When sown.
      - d. With what grains sown.
      - e. When mature for cutting.
      - f. Stems.
      - g. Form.
      - h. Height.
      - i. Quality.

- j. Quantity.
- k. Where grown.

2. Clover, Trefoil (Not a true grass).
   - a. Genus—Trifolium.
   - b. Family.
   - c. Species—150.
   - d. Kinds.
     - Dutch.
     - French.
     - Red.
     - White.
     - Alsike, or Swedish.
   - e. Uses.
   - f. Enemies.
3. Alfalfa, or Lucerne (Not a true grass).
   - a. Name—Spanish origin.
   - b. Description.
     - Stem.
     - Leaves.
     - Flowers.
     - Height.
   - c. Where grown.
     - 1. America.
       - Nebraska.
       - Kansas.
       - Texas.
       - Colorado.
       - Western Canada.
     - 2. Europe.
       - Countries along the Mediterranean.
   - d. Characteristics.
     - Deep rooted.
     - Adapted to dry localities.
     - Nourishing.
     - Healthful.
     - Yields 3 to 8 tons per acre annually.
     - Several crops per year.
4. Redtop.
   - a. When sown.
   - b. With what other seed sown.
   - c. Kind of soil required.
   - d. Chief advantage over other grasses.
   - e. Uses.
5. Blue Grass.
   - a. Permanent.
   - b. Hardy.
   - c. Length of growing season.



RED CLOVER.

   - d. Where grown.
     - Eurasia.
     - America.
       - 1. Mississippi Valley.
       - 2. Kentucky (Blue Grass State).
   - e. Use.
     - Pasturage.
     - Lawn.
     - Hay.
6. Bamboo.
   - A. Description.
     - 1. Stem.
     - 2. Rootstalk.
     - 3. Height.
     - 4. Soil required.
   - B. Propagation.
   - C. Uses.
   - D. Products.
   - E. Where grown.
     - 1. Tropical regions.
       - America.
       - Africa.
       - Asia.

Questions on Grass.

What plants are included with natural grasses? 1182.

What is the extent of growth in a season? Name some species.

State some uses. Name some of the products obtained.

Describe the harvesting of grasses to make hay.

How may unripe crops be cared for? What is known of the economic value of ensilage? 924.

Which two states rank first in the production of hay?

In which provinces of Canada is the yield greatest?

Upon what does the annual output of hay depend?

At what stage may the best quality of hay be secured?

Explain what is meant by *rowen.*

For what soil is redtop best suited? State one of its valuable properties.

Study the articles on corn, wheat, and barley and write an essay on *Cereals.*

Name some species of clover. What can you tell about alsike?

How may poor and exhausted lands be redeemed? State three uses for clover.

After whom did timothy get its name? By what other name is it known in England?

What proportionate value has timothy hay in the United States?

How is alfalfa particularly adapted to dry regions? How long has it been cultivated in Europe?

Why is blue grass especially valuable for pasturage? Which is the Blue Grass State?

How are lentils prepared for food? 1570.

In which countries is bamboo grown most extensively? State some of its uses to the natives. For what are bamboos used in America?

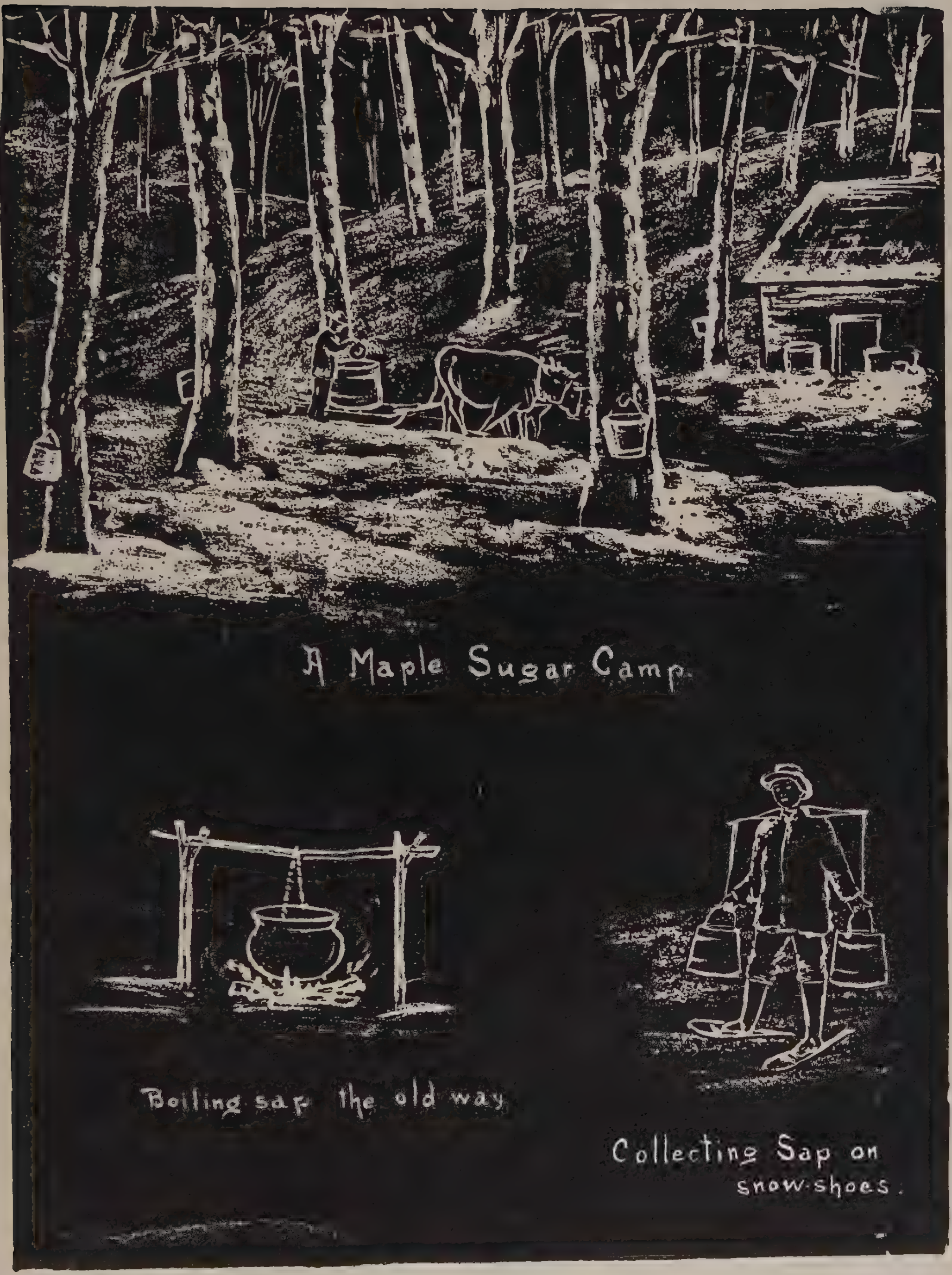
Song of the Clover.

I wonder what the clover thinks,
Intimate friend of Bob-o'-links,
Lover of daisies, slim and white,
Waltzer with buttercups at night;
Keeper of inn for traveling bees,
Serving to them wine dregs and lees,
Left by the Royal Humming Birds,
Who sip and play with fine-spun words;
Comrade of winds, beloved by sun,
Kissed by the dew-drops, one by one;
Prophet of Good Luck mystery,
By sign of four, which few may see;
Sweet by the roadsides, sweet by rills,
Sweet in the meadows, sweet on hills,
Sweet in its white, sweet in its red,
Oh, half its sweetness cannot be said;
Oh! who knows what the clover thinks?
No one! unless the bob-o'-links.
—*Saxe Holm.*

Showers and sunshine bring,
Slowly, the deepening verdure o'er the earth;
To put their foliage out, the woods are slack,
And one by one the singing-birds come back.
—*Bryant.*

Sugar.

- I. DEFINITION.
  - (A sweet crystalline compound).
- II. COMPOSITION.
  - 1. Elements: a. Oxygen; b. Carbon; c. Hydrogen.
  - 2. Proportions of each.
- III. HISTORY.
  - 1. Where first made (India and Arabia).
  - 2. Introduced into Europe (By the Moors into Spain).
  - 3. Introduced into the West Indies (By Spanish Colonists).
  - 4. Introduced for culture in Louisiana (1751).
- IV. FROM WHAT OBTAINED.
  - 1. Sugar Cane.
    - A. Nativity of plant (Central Asia).
    - B. How developed.
    - C. Description.
      - a. Leaves (3 ft. to 5 ft. long).
      - b. Stems.
      - c. Height (7 ft. to 12 ft.).
      - d. Pith (Contains juice).
    - D. Conditions for growth.
      - a. Lowlands (Most suitable).
      - b. A rich alluvial soil.
      - c. Abundant moisture.
    - E. How propagated.
      - a. By cuttings of top joints.
    - F. How planted.
      - a. In rows (5 ft. to 7 ft. apart).
  - 2. Cane Sugar.
    - A. Processes in the field.
      - a. Topping.
      - b. Stemming.
      - c. Cutting.
      - d. Grinding at the mill (Pressing out the juice and straining it).
      - e. Boiling in tanks (Until it becomes granular).
      - f. Separated by machinery from the syrup.
      - g. Raw sugar or brown sugar.
        - 1. Refining process.
        - 2. Dissolving in hot water.
        - 3. Adding lime and sulphuric acid.
        - 4. Passing through bags of cloth and charcoal.
        - 5. Second boiling.
      - h. Granulated sugar (How made).
      - i. Loaf sugar (How made).
    - B. Cane mills (How constructed).
  - 3. Beet Sugar.
    - A. From what plant derived (Sugar beet).
    - B. Where grown.
      - a. Germany (Produces the most).
      - b. Austria - Hungary, Russia, France, Canada, Belgium, Holland, United States.
    - C. History of cultivation.
      - a. In France by Napoleon (In 1810).
      - b. Discoveries of Count von Arnim.
      - c. United States, experiments of 1890.
    - D. Best zone in United States.
      - a. Location.
      - b. Length.
      - c. Width.
      - d. Government experiments.
      - e. United States production (For 1923, 750,000 tons).
  - 4. Sugar Maple.
    - A. Where grown (Indiana, Ohio, New York, Pennsylvania, West Virginia, New England States, New Brunswick, Ontario).
    - B. Season.
    - C. Sap, how obtained.
    - D. Maple sugar, how made.
    - E. Flavoring and uses.


A Maple Sugar Camp.
Boiling sap the old way.
Collecting Sap on snow-shoes.

BLACKBOARD LESSON.

5. Jaggery.
A. From what obtained.
B. Color.
C. Production.
6. Sorghum.
A. Nativity of plant (China).
B. Introduced into France (From China).
C. Introduced into America (1856).
D. Description.
a. Seeds.
b. Height.
c. Planting.
d. Uses.
(a) Fodder (In colder and dry climates).
(b) Molasses.
e. Preparing plant for molasses.
(a) Topping and stripping.
(b) Grinding and pressing out the juice of the stalks.
(c) Boiling to molasses.
f. Yield of molasses per acre (75 gal. to 150 gal.).
E. Resemblance to broom corn and sugar cane.
7. Glucose (Sometimes called grape or starch sugar).
A. From what made (Chiefly corn and potatoes).
B. Sweetening power (⅔ of that of cane sugar).
C. Uses.
a. Table syrups and confectionery.
b. Artificial honey.
c. For brewing liquors.
d. Food for bees.
e. Making bleached grape sugar.
f. For canning fruits.
g. Making jellies.
h. Making condensed milk.
D. Weight per bushel of corn (30 lbs. to 45 lbs. glucose).
E. Processes of manufacture.
a. Soaking in water.
b. Temperature necessary (80°F.).
c. Injecting sulphur fumes.
d. Time required.
e. Grinding, crushing, stirring, separating.
f. Extracting the oil.
(a) Amount (50%).
(b) Uses of the oil.
1. Making salads.
2. Mixing paints and making toilet soaps.
3. Residue feed to stock.
g. Removing the gluten.
(a) Process (Filtering and drying).
(b) Use (Food for stock).
(c) Price per ton (About $18.00 per ton).
h. Processes after the oil and gluten have been removed.
(a) Residue mixed with water.
(b) Filtered several times.
(c) Converted into syrup by sulphuric acid and muriatic acid
1. Pressure (25 lbs. to 40 lbs.).
2. Starch is steamed (About one hour).
3. Converts the starch into glucose, or grape sugar.
4. Solidity (35% solid matter).
5. Color (Yellowish brown).
6. Clarifying. 7. Evaporation.

      F. Amount of corn made into glucose yearly in United States (About 48,000,000 bu.).
  8. Grape Sugar.
      A. From what obtained (Juices of fruits).
          a. Apples, peaches, pears, and other fruits.
          b. Quantity (From 1 to 15 per cent.).
          c. How made.
  9. Milk Sugar.
  10. Other Materials.
      Such as barley, honey, and various allied substances.

V. CONSUMPTION OF SUGAR.
  1. For the world in 1925 (14,500,000 tons).
  2. Beet sugar consumed in 1925 (7,190,000 tons).
  3. United States consumption (2,525,000 tons).
  4. United States domestic sugar consumed at home (20%).
  5. Consumption per capita of leading nations (annually).
      a. England (91.6 lbs.).
      b. United States (93.2 lbs.).
      c. Switzerland (60.3 lbs.).
      d. Canada (54 lbs.).
      e. Sweden (38 lbs.).
      f. France (36 lbs.).
      g. Germany (34 lbs.).
      h. Russia (14 lbs.).

VI. REFINERIES.
  1. Location in United States
      (Largest are at New York, New Orleans, Baltimore, San Francisco).

VII. PRODUCTION OF SUGAR.
  1. Amount.
      Beet Sugar.
          a. Germany (1,975,000 tons).
          b. Austria-Hungary (860,000 tons).
          c. France (850,000 tons).
          d. United States (1923, 1,020,000 tons).
  2. Cane Sugar (1923, U. S., 573,000 tons).

Questions on Sugar.

In what country was sugar first made? 2769.
Of what country is sugar cane a native?
Is sugar cane found in the wild state?
What proportion of sugar is made from the sugar cane?
What is raw sugar? What is brown sugar?
How is raw sugar refined and made white?
How is granulated sugar made?
What are the differences in the processes of making loaf and lump sugar?
Sugar beet juice yields about how many per cent. of sugar?
What countries produce the most cane sugar? Beet sugar? 2770.
From what plants do we obtain grape sugar?
How is glucose or starch sugar made?
What is jaggary sugar? From what plant obtained?
What is the average number of pounds used by each person in the United States per year?
What nation uses the most sugar according to its population?
Is glucose a sugar and from what plants is it chiefly made? 1153.
What can you say about the sweetness of glucose compared to that of cane sugar?
Give the processes of making glucose.
How many pounds of glucose can be made from a bushel of corn?
Name seven articles in which glucose is used in manufacturing.
What is the color of the table beets? Of the sugar beets? 262.
To whom is credit given for the development of the sugar-beet industry?

What can you say of the sugar-beet zone in the United States, as to extent of length and width?

What provinces of Canada are raising the sugar beet successfully?

What State could produce enough sugar beets to supply the entire United States with sugar?

How many pounds of maple sap will a hard maple tree produce? How many pounds of sugar will it make? 1702.

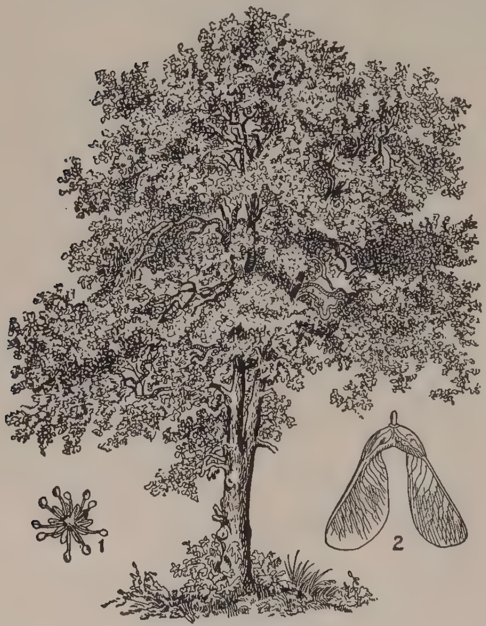
What can you say of the value of maple tree blossoms to bees?

How is maple sugar made? What states produce the most maple sugar?

Of what elements is sugar composed? 2770.

Do Indian corn and sorghum produce sugar?

From what is much of our candy made? 2770, 1153.



SUGAR MAPLE.
1. Flower; 2, Seed.

The Maple Tree.

"There's a maple bud, redder today!
It will almost flower tomorrow;
I could vouch 'twas only yesterday
In a sheet of snow and ice it lay,
With fierce winds blowing in every way.
—*Selected.*

The Song of the Sap.

The woods are still sleeping,
But grass is a peeping
From under the snow.
The swallows are coming,
The bees are a humming,
The sap has begun to flow!

The buds that were hidden
In brown coats are bidden
To break and let the world know.
The Ice-king is quaking,
The spring-time is waking,
For sap has begun to flow!

Memory Gems.

Under the greenwood tree
Who loves to lie with me,
And tune his merry note
Unto the sweet bird's throat,
Come hither, come hither, come hither!
Here shall we see
No enemy
But winter and rough weather.

Who doth ambition shun
And loves to live i' the sun,
Seeking the food he eats
And pleased with what he gets,
Come hither, come hither, come hither!
Here shall he see
No enemy
But winter and rough weather.
—*Shakespeare.*

If Mother Nature patches the leaves of trees and vines,
I'm sure she does her darning with the needles of the pines;
They are so long and slender and somewhere in full view,
She has her threads of cobwebs and her thimble made of dew.
—*W. H. Payne.*

Poultry.

I. CLASS—DOMESTIC FOWLS.

II. HISTORY.
  1. Origin. 2. Antiquity.

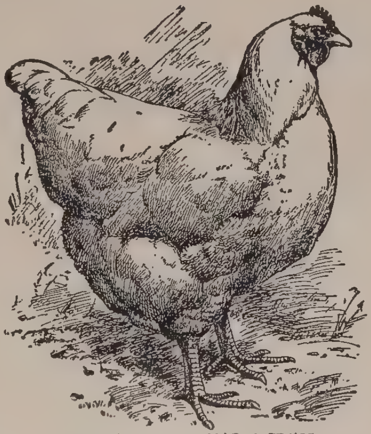
III. POULTRY RAISING.
  1. By whom engaged in.
  2. Where carried on.
  3. In what countries.
    A. United States and Canada.
      a. Annual poultry production.
      b. Annual egg production.
      c. Number of eggs used daily.
    B. France.
    C. Germany.

IV. PROPAGATION.
  1. From eggs.
  2. Incubation.
    A. Natural—Sitting hens.
    B. Artificial—Incubator machines.
    C. Time required—From 2 to 4 weeks.

V. CARE.
  1. Spacious yards.
  2. Proper food.
  3. Good breeding.
  4. Houses.
    A. Clean.
    B. Warm.
    C. Well lighted (Sunlight).
    D. Ventilated.

VI. FOOD.
  1. Grains (Corn, wheat, rye).
  2. Lime.
  3. Gravel. 4. Insects.

VII. KINDS.
  1. Chickens.
    A. Class—Domestic fowls.
      a. American — General breeding purposes.
      b. Asiatic—Meat or table use.
      c. Mediterranean — Egg-making.
      d. Polish—Ornamental.
    B. Species.
      a. Leghorn.
      b. Spanish.
      c. Hamburg.
      d. Cochin.
      e. Brahma.
      f. Bantam.
      g. Plymouth Rock.
      h. Langshan.
      i. Buff Orpington.
      j. Wyandotte.
  2. Turkey.
    A. History.
    B. Species.
      a. Common.
        1. Distribution.
        2. Description.
          a. Head.
          b. Neck.
          c. Weight.
          d. Plumage.
          e. Food.
          f. Nests.
          g. Eggs.
      b. Honduras.
        1. Native to what countries.
        2. Size.
        3. Plumage.
        4. Neck.

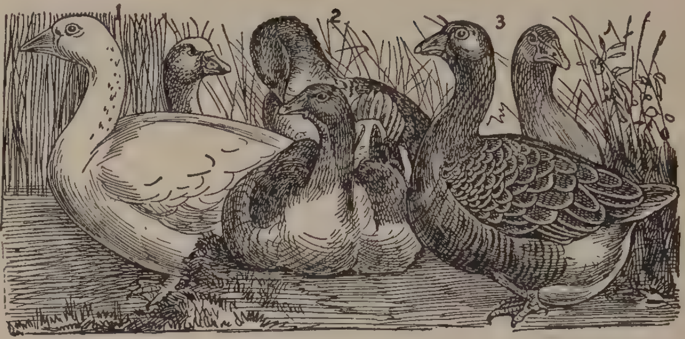


BUFF ORPINGTON HEN.

  3. Duck.
    A. Family—Web-footed birds
    B. Class—Swimmers.
      a. Tame.
      b. Wild.
        1. Sea ducks.
        2. True ducks.
    C. Kinds.
      a. Mallard.
      b. Wood duck.
      c. Scaup.
      d. Pintail.
      e. Musk duck.
      f. Pekin.
      g. Canvasback.
      h. Aylesbury, etc.
    D. Nest.

- E. Eggs.
    - a. Number—6 to 12.
    - b. Not as desirable as hens' eggs for food.
- F. Use.
    - a. Food.
    - b. Feathers.
- G. Characteristics.
    - a. Shape of bill.
    - b. Awkward waddling movement in walking.
    - c. Brisk flight.
    - d. Excellent swimmer.

4. Goose.
    - A. Description.
        - a. Origin.
        - b. Swimmer (Duck family).
        - c. Size.
        - d. Color.
        - e. Body.
        - f. Migration.
        - g. Longevity.
    - B. Uses.
        - a. Food.
        - b. Feathers.
        - c. Quills.
        - d. Eggs.
        - e. Oil.



1. SNOW GOOSE. 2. POMERANIAN GOOSE. 3. TOULOUSE GOOSE.

5. Other Species.
    - A. Peacock, or Peafowl.
    - B. Pigeon.
    - C. Swan.
    - D. Guinea fowl.

Questions on Poultry.

Explain how poultry should be cared for.

What advantages result from the use of incubators?

What kinds of poultry are the most prolific layers? Which are best for food?

Which country ranks first in the poultry industry?

How many eggs are used daily in the United States alone? 2297.

How many species of chickens can you name? Which class is best adapted for egg-making?

Which is the smallest species of chickens?

What is the male goose called? Give a distinguishing feature between wild species of geese and the domestic breeds.

How are turkey eggs incubated? How should young turkeys be cared for?

Mention several uses of geese.

What is the sound made by ducks called? Why are they web-footed?

For what is the peafowl especially noted? How are guineas helpful to poultry raising?

How many weeks are required to incubate the eggs of hens? How many to incubate those of ducks and geese?

Wheat.

- I. GRAIN BELTS
  - Location
    - Give limit by latitude in Northern Hemisphere.
    - Same in Southern Hemisphere.
  - Physical Features
    - Surface.
    - Drainage.
    - Climate.
    - Soil.
  - Occupation
    - Agriculture.
    - Stock Raising.
  - Nationalities
    - Compare in appearance, customs, manners, government, religion.
- II. HOW CULTIVATED
  - Preparation of Ground
    - When—How.
    - Implements used.
    - The old—The improved.
  - Sowing
    - The old way.
    - The new way.
    - Implements used.
  - A Wheat Field
    - Appearance while growing.
      - Color.
      - Size of stock.
      - Height of shock.
      - Heads and grain.
    - Appearance when ripe.
    - Visit a wheat field.
- III. HARVESTING
  - Time
    - When to begin.
    - How long to continue.
  - How
    - The old way
    - The new way
    - Implements used
      - Reaping Hook.
      - Cradle. Scythe.
      - Reaper.
      - Self-binder.
      - Header.
  - Shocking and stacking—When and how done.
- IV. THRESHING
  - When.
  - How
    - Old way.
    - New way.
  - Implements used (Visit an implement house).
  - Storing the wheat—Bins, elevators, etc. (Here describe an ordinary bin and a large elevator).
- V. MILLING
  - Transportation
    - By wagon and capacity.
    - By railroad trains.
      - Number of cars.
      - Capacity.
    - By steamboats
      - Size.
      - Capacity.
  - Storage
    - Bins.
    - Elevators.
  - Cleaning
    - Machinery.
    - Processes.
  - Grinding
    - Old way.
    - New way.
  - Grades of flour (Processes of separating and refining).

    Stacking and packing, selling and shipping. A visit to a mill to be made a careful study. Capacity of mill as to storage and for doing work. Number of barrels flour per day. Kinds of wheat. Quantity of wheat. Where it comes from. Kind and grade of flour. Amount used for home consumption. Amount exported, etc. When exported.
- VI. USE
  - Bread
    - Light bread.
    - Biscuit.
    - Light rolls, etc.
    - (Visit to a bakery).
  - Pastry
    - Pies.
    - Cakes, etc.
  - Other uses.
  - Food for animals.
  - Its value as a food product.
- VII. Great Wheat Centers—Where—Why.
  Export Trade—Where—How much.
  Imported Trade—Where—How much.

Forestry and Lumbering.

Forestry is the enterprise of cultivating and managing growing timber. In a wider sense it embraces horticulture, which is the art of producing plants that possess value for the agreeable properties of their products. While horticulture is concerned particularly in laying out and taking care of gardens and orchards, it frequently merges into special branches of forestry, such as the cultivation of nut-bearing trees. Consult the articles on FOREST, FORESTRY, HORTICULTURE, GRAFTING, GREENHOUSE, LANDSCAPE GARDENING, FLORICULTURE.

I. FOREST BELTS . . .
- Locate, by latitude, all countries you study.
- Give surface, drainage, climate, soil and occupations of the people.
- Use—To modify climate, to furnish fuel, to provide shelter, to provide building material, etc.
- Question:—Is it right to destroy the Forest Regions? Why?

II. HOW OBTAINED. .
- Logging
  - Time.
  - Extent.
  - Manner.
- Camp life of the loggers, etc.
- Cutting, loading, transportation.
- Means of transportation.
- Milling:
  - Location of handling the logs—The sawmill.
  - Manner and process of handling and sawing the logs.
  - Taking care of the lumber and preparation for shipment.
  - Visit a sawmill, if possible.
- Lumber Yards:
  - Process of handling and caring for the lumber (Visit a lumber yard and find out where the lumber comes from).
  - Kinds shipped, etc.

III. KINDS. . . . .
- Hard Lumber: Name and describe different trees from which hard lumber is obtained.
  - Locate regions in which hard wood is most usually found.
- Soft Lumber (Same as in hard lumber).

IV. USE. . . . .
- Building Purposes—Houses, barns, bridges, fences, etc.
  - Kinds used—Hard or soft? Why?
- Furniture:
  - Kinds—Hard or soft (Visit a furniture store).
- Implements:
  - Kinds—Hard or soft (Visit an implement house). Why?

V. INDUSTRY . . . .
- Lumber Centers: Where? Why?
  - Lumber as an export. As an import.

VI. LITERATURE . . . . .
- *The Forest Hymn.*—Bryant.
- *The Lumberman.*—Whittier.
- *Planting the Apple Tree.*—Bryant.
- *Woodman, Spare that Tree.*—Morris.
- *Building of the Ship.*—Longfellow.
- *The Ship Builders.*—Whittier, etc.

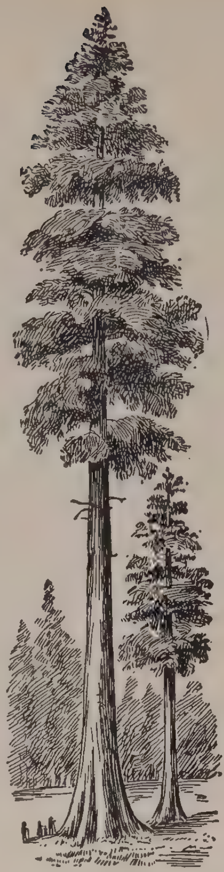
VII. Some Important Trees

- Apple.
- Apricot.
- Ash.
- Basswood.
- Birch.
- Buckeye.
- Butternut.
- Catalpa.
- Cedar.
- Chestnut.
- Elm.
- Hickory.
- Lemon.
- Linden.
- Maple.
- Oak.
- Orange.
- Palm.
- Pine.
- Plum.
- Redwood.
- Sycamore.
- Walnut.
- Willow.

VIII. Related Products

- Turpentine, tar, rosin.
- Rubber, quinine.
- Maple sugar, wood alcohol.
- Fruit, foliage.
- Nuts, nut oil.
- Flowers, perfumes, medicines.

> The groves were God's first temples. Ere man learned
> To hew the shaft, and lay the architrave,
> And spread the roof above them—ere he framed
> The lofty vault, to gather and roll back
> The sound of anthems; in the darkling wood,
> Amidst the cool and silence, he knelt down,
> And offered to the Mightiest solemn thanks
> And supplication.
>
> —*Bryant.*



SEQUOIA TREES

Questions on Forestry.

Define root, trunk, limb, bough, bud, bark, sap, leaf, and heartwood.

Give five uses of forests. Which of these are the most important?

By what are forests destroyed? What is their worst enemy?

Where are the best preserved and the most valuable forests to be found?

What is the extent of the forest reserves in Canada?

State the aim and benefits of the Bureau of Forestry. 1033.

How has the government aided in promoting interest in forestry?

Give a list of fruit trees in your vicinity.

Name some trees from which lumber is made. What is hard-wood lumber?

Where are the forest regions of Canada?

Name some lumber from which furniture is made.

From which trees are the following products obtained: tar, rubber, quinine, nut oil, chocolate, and wood alcohol?

Relate some historical facts in connection with the oak and the elm.

Mention some favorite poems about trees.

What are the largest trees and where are they grown? 2589.

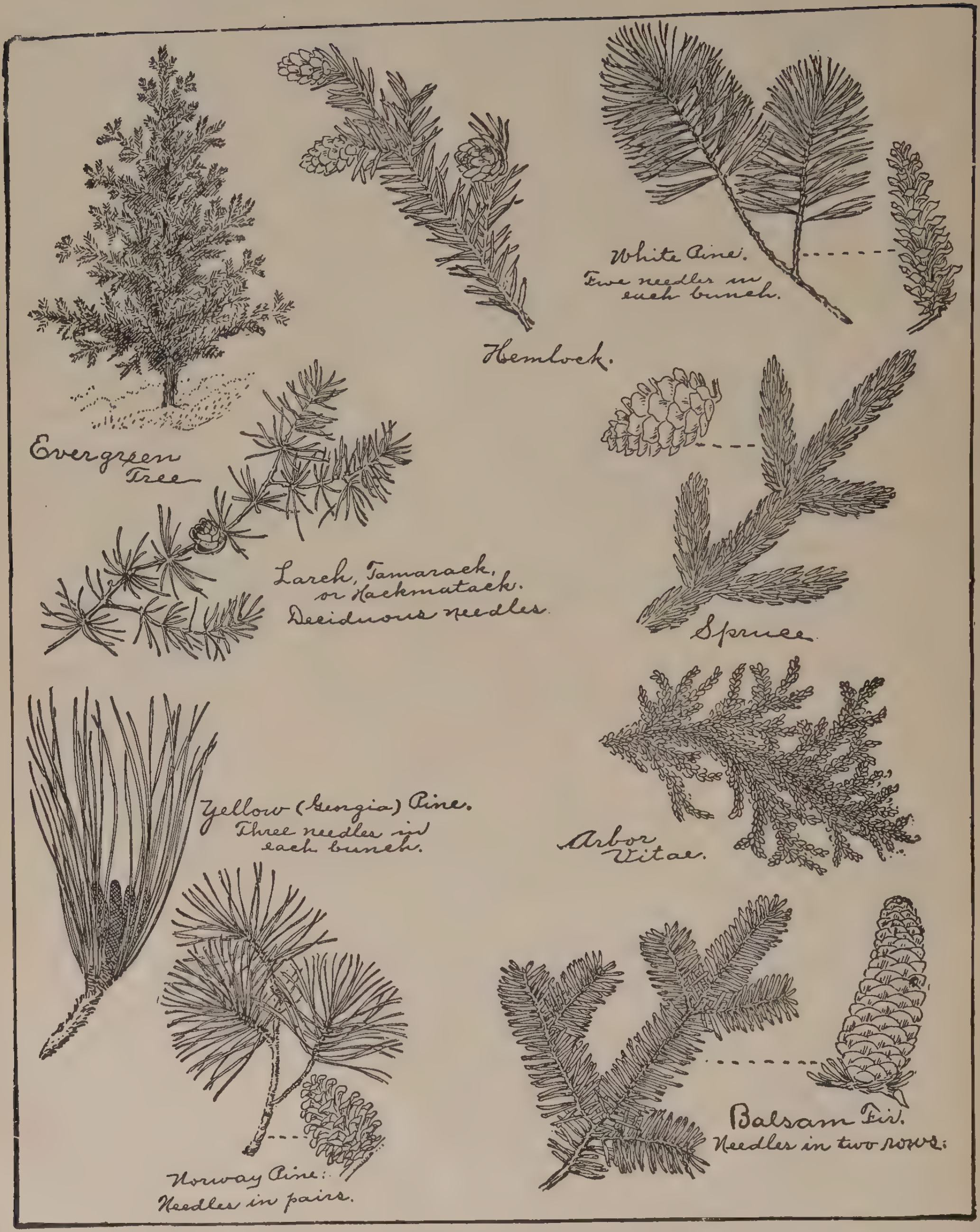
What permanent benefits are derived from the observance of Arbor Day?

In which country are the most dense forests found at present?

Give the origin of the following names: bottle tree, traveler's tree, breadfruit tree, and redwood.

What do you know of the forests in Alaska, the Philippines, Africa, and Norway?

What can you say of the evergreen trees and the Douglass spruce of Canada?


Evergreen Tree
Hemlock.
White Pine. Five needles in each bunch.
Larch, Tamarack, or Hackmatack. Deciduous needles.
Spruce.
Yellow (Georgia) Pine. Three needles in each bunch.
Arbor Vitae.
Norway Pine: Needles in pairs.
Balsam Fir. Needles in two rows.

EVERGREEN TREES.

Oak.

I. GENUS—Cupuliferae (Bearing a little cup).

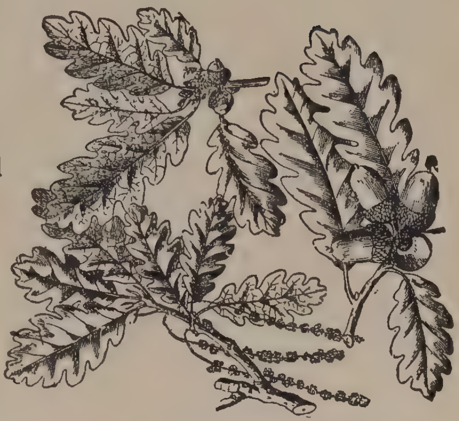
II. HOME.
  1. Temperate Zone.
  2. All continents.
  3. North America—Chiefly.

III. CLASSIFICATION.
  1. Deciduous.
  2. Evergreen.
    Evergreen oak of California.
    Live oak of Southern United States.

IV. DESCRIPTION.
  1. Size.
  2. Shape.
  3. Leaves.
  4. Flowers.
  5. Roots.
  6. Wood, bark.
  7. Fruit.
  8. Soil required.

V. SPECIES—300 or more.
  1. Cork oak—Brown in Mediterranean countries.
  2. Turkey oak—Bears sweet and edible acorns.
  3. White oak—Thrives from Canada to Mexico; valuable for its hard wood.
  4. Others.
    Bur.
    Red.
    Black.
    Cork.
    Gall.
    Live.
    Barbary.
    Swamp.
    Scrub.
    Pin.
    Kermes.
    Chinquapin.

VI. USES.
  1. Wood.
    Furniture.
    Shipbuilding.
    Vehicles.
    Mechanical appliances.
    Construction work.



OAK LEAVES AND ACORNS.

  2. Bark.
    Medicine.
    Tanning.
    Sort of fustian cloth (Inner bark).
    Cork.
  3. Fruit—Acorns.
    Food for cattle, swine, etc.
    Some edible for man.
    Sweetmeats.
  4. Gallnuts.
    Medicine.
    Ink.
    Dyes.

VII. CHARACTERISTICS.
  1. Majesty.
  2. Longevity.
  3. Strength.
  4. Durability.
  5. Historical.
    King Oak of England.
    Charter Oak of United States.

The Oak.

Sing for the oak tree, the monarch of the wood,
Sing for the oak tree, that groweth green and good!
That groweth broad and branching within the forest shade;
That groweth now, and still shall grow when we are lowly laid.

The oak tree was an acorn once, and fell upon the earth;
And sun and shower nourished it, and gave the oak tree birth;
For centuries grows the oak tree, nor does its verdure fail;
Its heart is like the iron wood, its bark like plaited mail.

—*Selected.*

Woodman, Spare That Tree.

Woodman, spare that tree!
  Touch not a single bough!
In youth it sheltered me,
  And I'll protect it now.
'Twas my father's hand
  That placed it near his cot;
There, woodman, let it stand,
  Thy ax shall harm it not!

That old familiar tree,
  Whose glory and renown
Are spread from sea to sea,
  And wouldst thou hew it down?
Woodman, forbear thy stroke!
  Cut not its earth-bound ties;
Oh, spare that aged oak
  Now towering to the skies!

When but an idle boy,
  I sought its grateful shade;
In all their gushing joy
  Here too my sisters played.
My mother kissed me here;
  My father pressed my hand;
Forgive this foolish tear,
  But let the old oak stand.

My heartstrings round thee cling,
  Close as thy bark, old friend!
Here shall the wild birds sing,
  And still thy branches bend.
Old tree, the storm still brave!
  And, woodman, leave the spot;
While I've a hand to save,
  Thy ax shall harm it not.

—*George P. Morris.*

Questions on the Oak.

How many species of oak can you name which grow in your part of the country?

What do you know of the age of oak trees? 2011.

What are oak galls and for what are they valuable?

Where is the cork oak grown? How is the cork obtained?

Describe the fruit of the oak tree and tell for what it is used.

Name some uses for the wood of the oak tree.

State some characteristics of oak trees.

What interesting historical incidents are associated with oak trees?

What is the significance of the oak leaf?

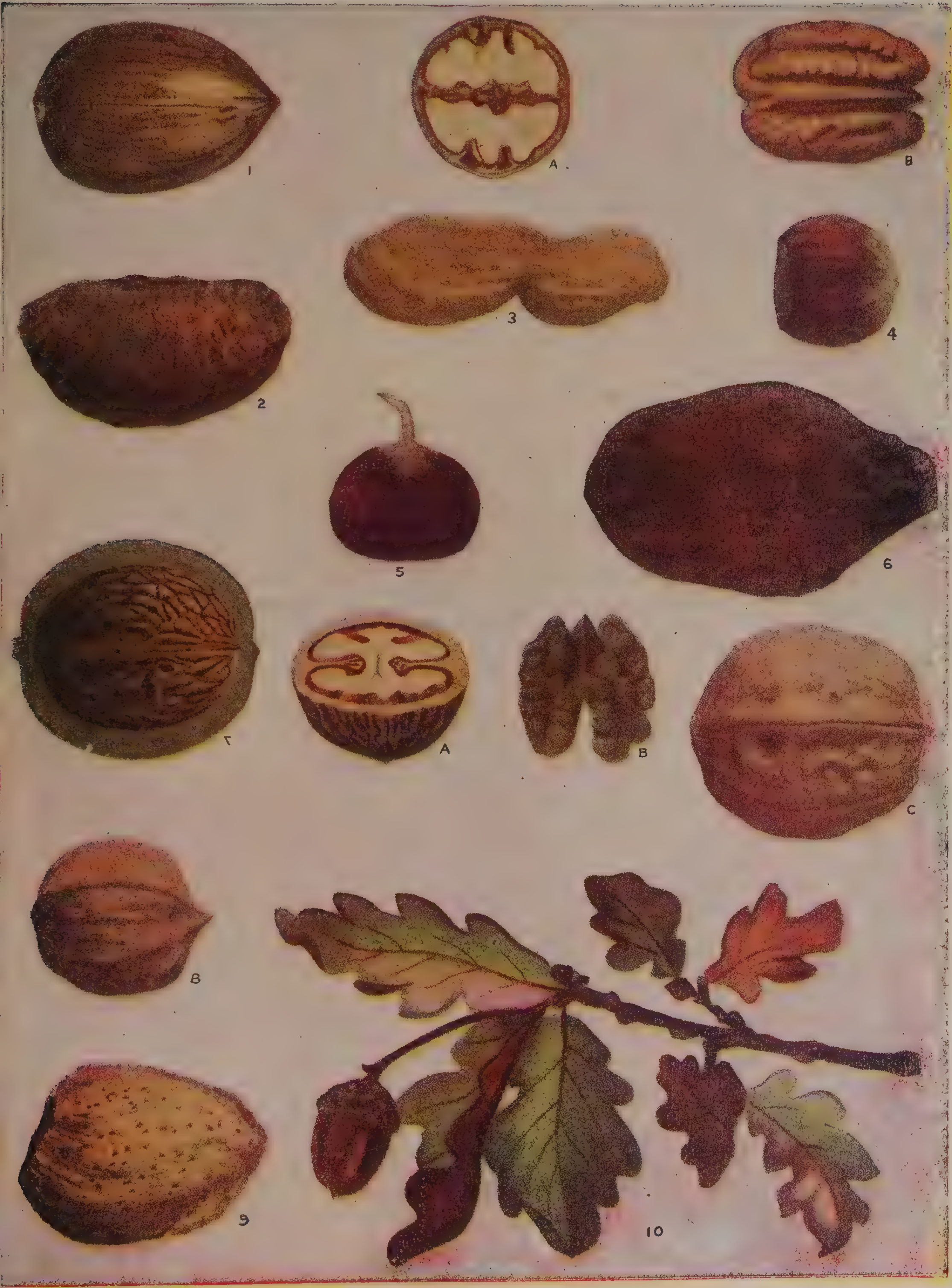
Why has the oak been called "Monarch of the woods?"

What special variety of oak is grown in California?

Memorize the poem *Woodman, Spare That Tree.*

Where is the live oak found? Describe the evergreen oak.

Why is the bark of the oak valuable in tanning?



(Method Book Opp. 110)

VALUABLE NUTS.

1. **Pecan:** A, sectional view; B, kernel; 2, Brazilnut; 3, Peanut; 4, Filbert; 5, Chestnut; 6, Butternut, or White Walnut; 7, Black Walnut: A, Sectional view; B, kernel; C, English Walnut; 8, Hickory Nut; 9, Almond; 10, Oak, showing leaves and acorn.

Horticulture.

I. DEFINITION: Horticulture is a branch of agriculture. It is the art of cultivating flowers, fruits, and vegetables. These three departments are known respectively as floriculture, pomology, and olericulture.

II. DIVISIONS.
  1. Floriculture.
  2. Pomology.
  3. Olericulture.
  4. Subdivisions.
    A. Amateur—Personal ideals.
    B. Commercial—Commercial demands.

III. ESSENTIAL FEATURES.
  1. Character of soil.
    A. Fruit trees—Rich, dark loam.
    B. Vegetables and early crops—Sandy loam.
  2. Drainage—Systematic.
    A. Effective cultivation.
    B. Lessen injurious freezing.
  3. Slope of surface.
    A. Facing sun—Warm regions.
    B. Away from sun—Northern latitudes.
  4. Choice selection of species of plants.
  5. Fertilization and cultivation.
    A. Suitable fertilizers.
    B. Thorough tilling.
    C. Destruction of weeds, insects, etc.

IV. STRUCTURES.
  1. Hothouses.
  2. Greenhouses.
  3. Pits.
  4. Nurseries.

V. PROPAGATION.
  1. Pollen fertilizing.
  2. Grafting.
  3. Budding.
  4. Seed.

VI. COUNTRIES.
  1. United States—Largest output.
    A. Apples—Leading crop.
    B. Annual yield.
    C. California—First in production of citrus fruits. Annual shipment.
    D. Florida—Second in citrus fruit.
    E. Peaches, pears, tomatoes, bananas.
  2. Canada.
    A. Number of species.
    B. Quantity of fruit.
    C. Exports.

The Seven Ages of a Tree.

A very practical way of naming and distinguishing trees is as follows:

1. Young trees which have not reached a height of three feet are seedlings. They are called seedlings in spite of the fact that any tree, of whatever age, if it grew from a seed, is called a seedling tree.
2. Trees from three to ten feet in height are small saplings.
3. Trees from ten feet in height until they reach a diameter of four inches are called large saplings.
4. Trees with a diameter ranging from four to eight inches are called small poles.
5. When the diameter is from eight to twelve inches, the trees are known as large poles.
6. Trees that have a diameter ranging from one to two feet are called standards.
7. All trees over two feet in diameter are known as veterans.

It is important to remember that all these diameters are measured breast high, or at the height of a man's chest, about four feet from the ground. In forestry this is, roughly speaking, the general custom. —*Gifford Pinchot.*

The Fruit Tree.

The Tree's early leaf-buds were bursting their brown,
"Shall I take them away?" said the Frost, sweeping down,
"No, leave them alone
Till the blossoms have grown,"
Prayed the Tree, while he trembled from rootlet to crown.

The Tree bore his blossoms, and all the birds sung;
"Shall I take them away?" said the Wind as he swung.
"No, leave them alone
Till the berries have grown,"
Said the Tree, while his leaflets quivering hung.

The Tree bore his fruit in the mid-summer glow:
Said the girl, "May I gather thy berries now?"
"Yes, all you can see;
Take them, all are for thee,"
Said the Tree, while he bent down his laden boughs low.

—*Bjornstjerne Bjornson.*

Questions on Horticulture.

What is horticulture? Name its chief divisions. 1325.
What are the essential features to be observed?
Explain the effect of systematic drainage upon the plants.
What benefits are derived from guarding the sloping when planting?
Why is a slope from the sun preferred in a cold climate?
Name three kinds of grafting. Explain the process of budding.
What is a nursery and where are nurseries maintained?
How has floriculture been greatly facilitated within recent years?
What is the leading fruit crop in the United States?
Where are the leading vineyards of North America? Of Europe?
What is the annual yield of fruit in California? In Florida?
In the exportation of what fruits has Canada made special progress?
Write a complete list of the trees and shrubs that should be grown in a first-class orchard in this vicinity.

Course of Study in Agriculture.

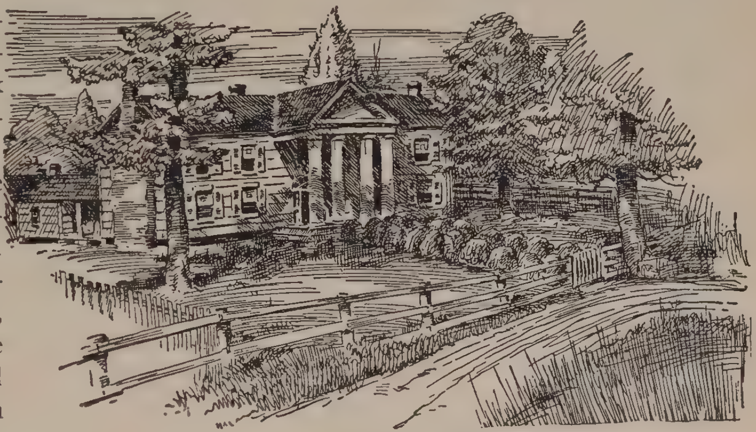
Objects to Be Obtained.

1. To stimulate a general interest in agriculture.

2. To emphasize the importance of associating school work with the practical duties of the farm.

3. To stimulate interest in successful business methods, thereby inducing the student to avoid failure in life by teaching him to work for wholesome results.

4. To induce the student to become methodical in acquiring information for himself, teaching him to be industrious and energetic in searching for reasons and in studying the plants by which the life in the country is beautified.



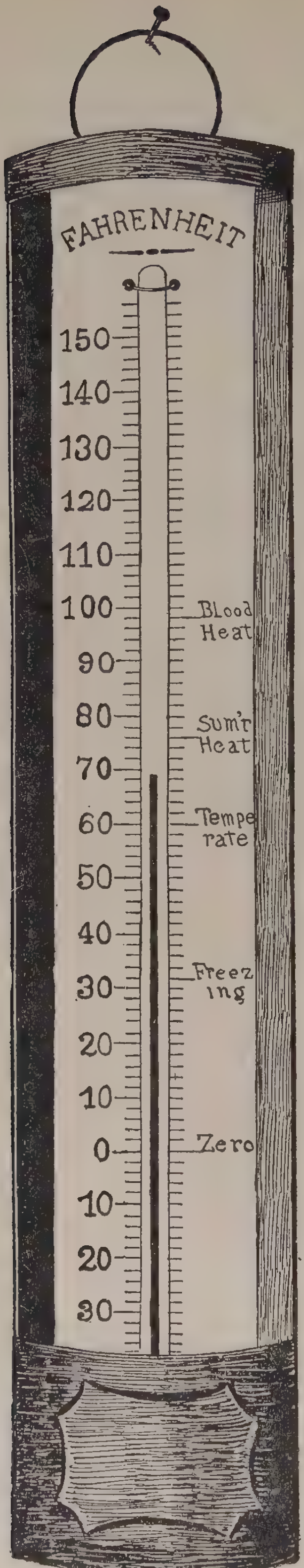
TYPICAL FARM HOME IN THE SOUTH.

5. To instill a love for the soil, for the care of animals, and for the occupation of farming.

6. To impress upon the mind of youth the importance of agriculture and the advantages enjoyed by those who live upon the farm.

Successful work in teaching the elements of agriculture depends to a large extent upon the teacher. It requires not only tact and enthusiasm, but to these must be added interest and industry in searching for the objects and information which are particularly fitted for the individual student. The aim should be to make the instruction a means of connecting the school work with the practical side of the business engaged in by the farmer. To do this successfully, the teacher must correlate history, literature, and other branches with the topics taught. Incidentally it is well to point out the many advantages enjoyed at present by the farmer, who has come to be interested in good roads, telephones, rural free delivery, automobiles, and other conveniences of a progressive age.

Experiments in the treatment of seeds and plants should be features of the exercises from time to time. These experiments should include both oral and



THERMOMETER.

written work. Information upon the different topics will be found under appropriate titles in this text and the outlines of study, hence this work should be consulted in regard to the topics as they come in the lessons from time to time. The best composition and other written work prepared during the year should be preserved.

First Month.

Prepare a sectional map of your school district, showing the leading physical features, such as creeks, elevations, and valleys. Indicate on the map the land which is best fitted for cultivation, for pasturage, and for meadows. Reasons should be stated why land is particularly fitted for one or more of these purposes.

Obtain several kinds of soil for examination, such as may be found in different places near the school house. Explain how soil came to be formed. Notice what kind of a subsoil is found in the vicinity. Study different localities in the neighborhood and obtain soil in which clay, sand, and gravel predominate. Endeavor to make it plain that plants must have a suitable soil as well as moisture and warmth in order to thrive and yield seed or fodder.

Study the relative interest taken by farmers in the neighborhood in different classes of crops. Make a list of the principal products, such as hay, corn, wheat, oats, and potatoes. Study the results of planting in rich loam and in a very sandy soil, making it an object to learn what plants may be grown to the best advantage in the locality.

Take a spade and dig in the ground to see how deep the soil is in different places. Make an examination of several places, first on an elevated point and next in a valley. Demonstrate that the rains wash much of the fertility from the slopes into the low land, where the richest soil is found. Notice the darker color of the soil in the valley, showing that it contains a considerable portion of alluvial matter.

The question naturally suggests itself, whether soil always maintains its fertility. In this connection may be shown the advantages of rotating crops and the benefits which result from the use of fertilizers. The same crops cannot be grown on the same ground from year to year, but in some soils it is possible to maintain fertility for many years by rotating the crops. In other soils it must be maintained by manures and still in others by commercial fertilizers. Explain the value of clover and other deeply rooted plants to stimulate fertility of the soil.

Have the pupils prepare a list of the leading farm crops grown in the vicinity. Study the lists and select the eight leading crops for discussion in class. Endeavor to learn the uses, either locally or after transportation, of these crops. Fruits and vegetables grown in the vicinity should be studied in a similar manner.

A collection of the grains and seeds produced in the vicinity should be preserved with care. Each collection should be placed in an envelope or a pasteboard box, then labeled with the name of the collector and the name of the seeds, after which they should be placed where they can be secured for planting in the spring.

Record of Weather and Rainfall.

WEATHER. Rule a blank book so as to have a full page as a record sheet for each school day of the year. The temperature is to be recorded in this record three times each day, at 9 A. M., at noon, and at 4 P. M. In the same record are to be recorded the directions of the wind, whether it is cloudy, and the amount of rain or snow. The record is to be kept by one of the pupils, who is to have an alternate, and the latter is to be in charge the second month. No one is to have charge of the record more than a month at a time. In this way all the older pupils will become familiar with the plan. The following is suggested as a suitable ruling of the

Weather Record:

Date	Temperature				Clouds			Rain or Snow			Direction of Wind		
Sept.	9 a. m.	Noon	4 p. m.	Mean	9 a. m.	Noon	4 p. m.	9 a. m.	Noon	4 p. m.	9 a. m.	Noon	4 p m.
4	50	65	60	58.3	..	C	C	..	R	R	N.	N. E.	E.
5	65	80	75	73.3	C	..	..	R	..	..	E.	W.	W.
6	60	78	72	70.0	C	..	..	..	..	..	N. W.	N. W.	N. W.

RAINFALL. Have the tinner make a simple rain gauge of two parts, one large and funnel-shaped to catch the rain and the other small and sufficiently deep to measure it. The former should have an exposure, or diameter, three times greater than the latter. This is desirable for the reason that many rainfalls are so slight that they cannot be measured in the same pan in which the water falls.

The rule for measuring the water should be finely graduated so as to indicate small quantities. Only one-ninth of the measurement is to be counted, as the square of the diameter of the receiving vessel is nine times greater than the measuring vessel. Snowfalls must be melted and measured as rain. The rain gauge should be set in the open, where gusts of wind will not drive the falling drops into it or away from it, owing to the proximity of trees or buildings. It should be held firmly in position by stakes and the receiving vessel should be set so all the water will flow into the one below.

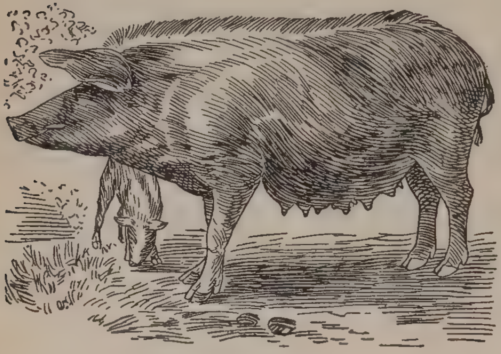
QUESTIONS:—Explain the meaning of soil and of subsoil. What is meant by "rotation of crops?" Mention three cereals and five vegetables grown in the neighborhood. Why does the soil lose part of its fertility by constant cultivation unless fertilizers are used? Where is the richest soil, on the hill-tops, on the slopes, or in the valleys? Draw a map of a section of land in the neighborhood, showing the farms and the names of those who reside on them.

Second Month.

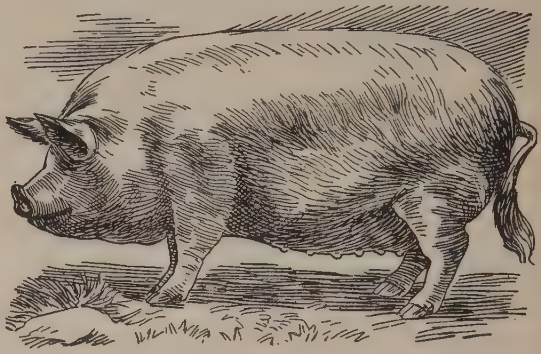
Make a study of the insects that are found in the neighborhood and determine which are helpful and which are detrimental to the farmer. It is well to prepare for this work by collecting specimens as they are obtainable throughout the growing season. Have the pupils search in literature for statements regarding the more common insects.

Take up the study of the best known weeds and their habits of growth. Make a collection of their seeds and parts of the plants. These should be preserved in the same way as the seeds mentioned in the outline for the first month. Prepare a list of the weeds that spread only by seeds, that spread chiefly by growth from the roots, and that spread both by seeds and growth from the roots. Which of these are most obnoxious? Should the weeds growing on highways be destroyed before the seed ripens?

Cut several apples in halves from the blossom end to the stem. Select apples of different kinds for this purpose. Speak of the varieties, in what respects they differ from each other, and the purposes for which they are best adapted. Have each pupil make a drawing of at least one piece, requiring that the parts on the cut side be shown as clearly as possible. In future lessons extend this work until the students are able to draw both entire apples and parts cut in different sizes.



UNIMPROVED HOG.



CHESTER WHITE FEMALE.

Prepare a complete list of the domestic animals reared in the vicinity. To this list add a number of useful animals common to Northern Canada, Arabia, and Egypt. Which animals are raised only to work, which for their work and meat, and which solely for products after they have been slaughtered? Make a study of the products obtained from animals reared in the neighborhood.

Study some cereal, such as corn or wheat. When, how, and for what purpose is it planted? How many crops may be grown in succession on a given piece of land? Speak of the best way to rotate the crops. Give conversational lessons in how to cultivate and harvest corn. Besides being a staple article of food for animals, for what is corn used? Where are the largest fields of corn grown? Mention different kinds of corn, such as *dent corn, pop corn, Kafir corn,* and *sweet corn,* and study the uses of each.

Study the neighborhood and determine whether it may be classed as having been a prairie or a timbered section. Notice what effect settlement has had as regards the growth of trees. Prepare a list of the trees now growing in the vicinity and classify them as to size, form of leaves, kind of seed, color and hardness of wood, character of bark, and uses and value of seed and wood.

Review the weather record for the first month to determine how many days the sun shone. How much warmer was it during sunshine than during cloudy weather? Make an estimate of the total rainfall during the previous month. Was the precipitation normal for this neighborhood?

Draw a map of the township, showing the highways, school houses, streams, timbered belts, if any, and churches. What is the name of the civil township? Explain the difference between a civil township and a congressional township. Give the number and range of this township.

Questions:—Name the most useful insect found in this section. Prepare a list of the twelve most injurious insects common to the neighborhood. How do weeds come to grow in the fields from year to year? In what respects have the improvement of the farms changed the general aspect of this neighborhood? How are the oak and willow propagated? Which is the most useful for human food, corn, rice, or wheat? Name five kinds of apples and four kinds of corn.

Third Month.

Study the food and shelter of farm animals. Make it clear that suitable shelter is as important in raising live stock as the food itself. It is easier and less expensive to keep a horse in good condition when it is kept in a well-constructed barn than when it is exposed to the cold of winter. This is true likewise of all classes of animals.

Barns, hog houses, kennels, and henhouses should be built with the view of securing good sanitation. They should protect against cold and at the same time have plenty of light and ventilation. Since all animals are subject to disease, it is important to care for them with the greatest possible concern. The profits are measured largely by good housing and judicious feeding.

Write essays on the subjects Corn, Wheat, Rye, Cotton, Tobacco according to the following outline:

1. General description.
2. Planting.
    a. At what season.
    b. Preparation of the ground.
    c. How planted.
3. Cultivation.
4. Diseases and insects.
    a. Name and character of.
    b. Damage to plant and seed.
    c. Means of prevention.
5. Harvesting and use.
    a. Machinery employed in harvesting.
    b. Yield per acre in bushels or pounds.
    c. How prepared for use in commerce.

Direct attention to the need of drainage on the farm. The tile drain furnishes the best kind of drainage in mose instances. Other drains, especially open ditches, may wash too large or may become filled with grasses and weeds. They cause a waste of land, while tile drains make it possible for all the surface to be cultivated.

In some places it is necessary to provide against overflows. This is done by building levees and dikes. Where are the largest levees in the United States?

Irrigation, on the other hand, is a system of conducting water by ditches and canals to land that naturally is too dry for farming. Question the pupils about the arid regions of Canada and the United States.

Take measurements of at least three horses as a means of studying the different proportion of parts. Call attention to the height at the withers, the girth just back of the shoulders, the girth at the flank, and the length from the withers to the setting of the tail. Define hoof, fetlock, hock, cork, mane, gullet, poll, muzzle.

Describe the food that is best suited for chickens. When do hens lay the most eggs, in which season? Why should hens be supplied with gravel or oyster shells? Draw a sketch of a suitable henhouse and write a description of it. Will hens lay eggs in the winter?

Write an essay on "Beauty of Life on the Farm." In this article make mention of good roads, the telephone, interurban railways, landscape gardening, and ornamental trees. Preserve the best essays for the school exhibit or the county fair. One or two of those may be sent for publication to a newspaper.

QUESTIONS:—What can you say of the value of shelter for animals? What is irrigation? Explain different kinds of drainage. How many bushels per acre constitute a good yield of corn? What is the difference between drilling wheat and sowing it broadcast? Having suitable facilities, is it as profitable to raise chickens as it is to rear swine? Can sheep feed on shorter grass than cows?

Fourth Month.

Life on the farm in the winter is considered pleasant for many reasons. The farmer has garnered his grain and filled his mow with sweet-scented hay. His cellar contains the fruits of the orchard and the garden. He is now enjoying the products of the rich acres that were made fertile by wise husbandry. Although he has stored the food and provisions for his family and his animals, the hens still continue to lay fresh eggs and the cows yield a goodly quantity of milk for the household. What he consumes on his table is the pure and unadulterated product fresh from nature.

Compare with the food of the farmer the products that come to the tables in the city. The eggs and butter are shipped from the country points to be kept in cold storage, where they often become stale. However, the inspection of food and food products has been the means of greatly improving the quality. In the large city, vegetables and fruits are sold in a fresh condition the entire year. This is made possible by the advantages of rapid transportation facilities in all sections of the country. Meat, flour, and other staple products are nearly the same in the city and on the farm.

The farmer feeds for the market a large part of the winter. This line of work, together with marketing the surplus product and preparing for the coming season, keeps his time well occupied. Farm animals need especial care during cold and wet weather. It is very essential that the live stock should be attended with sufficient care to have it in good condition in the spring.

A horse should be fed both hay and grain throughout the year, except when it is kept in a good pasture, but relatively more grain is required when the horse is working. Give reasons why a horse cannot do heavy work when it is fed only on hay. The horse should have plenty of pure water three times each day.

Cows become more docile when they are dehorned. This should be done when the calf is about a week old. Cattle with horns must be kept tied, or stanchioned, else the animals will injure each other by horning. Corn, oats, barley, and hay are the principal food of cattle. Beets and beans are fed to cattle in some countries. Cattle, camels, and goats are grown for meat and milk, but these products derived from cattle are the most important.

Write an essay on Potato and make a drawing to show the plant. What other vegetables besides the potato are raised in the neighborhood? Tell when and how the potato is planted. In localities where the potato is grown in large fields, it is planted and dug by machinery. How are potatoes dug by farmers and gardeners in this vicinity?

Explain how corn is planted, whether in hills or drills. How many feet apart are the rows of corn? If planted in hills, how many kernels are dropped in a hill? Write a description of the corn plant, mentioning the seed, the roots, the leaves, the tassel, and the ear. Describe the cob and tell how many rows there are in a particular ear which you have studied. Which Province of Canada produces the largest amount of corn? Name the five foremost corn-producing states of the United States.

QUESTIONS:—What can you say about the life of the farmer in winter? Have the telephone and rural free delivery of mails made farm life pleasanter? How many times each day should a horse have water? Does it pay to be kind to farm animals? Is dehorning a benefit to cows? In some localities corn is planted in hills and in others in drills, explain the reason. Which animal is the most important for the production of milk? Of what other animals is milk used?

Fifth Month.

Make an examination of several farm animals to study the difference in the coverings of their skin. Learn of what uses hair and feathers are in the market. Which feathers are the most useful, those of chickens or of ducks and geese? With what are sheep and hogs covered?

Learn of some farmer who is feeding steers in the neighborhood and make the following record:

1. Number and breed of steers.
    - a. Whether Shorthorns, Herefords, etc.
    - b. Color; whether red, spotted, etc.
2. Food and water.
    - a. Classes of food.
    - b. How and when fed.
    - c. Watering, how often.
3. How many hogs are fed in the same yard?
4. At what age should stock be marketed?

Milch cows should be well fed on good hay and some grain in the winter. The richness of the milk depends partly on the breed of cows and partly on the food. Which is larger, a cow or an ox? Is a cow profitable for any other purpose besides milking?

Study the shade trees of the neighborhood. Which are best for shade and why? The soft maple, cottonwood, and boxelder are planted very extensively in some sections for shade because they are hardy and grow rapidly. Mention other trees that are planted for shade. What can you say of the oak, hard maple, and mahogany as ornamental trees?

Collect the names of all the varieties of apples grown in the vicinity.

Describe the fruit of the early apples and tell for what purposes the different species are best adapted. What is a winter apple and how does it differ from a fall apple?

The parts of plants are known as the root, stem, and leaves. Define each and explain the purposes it serves in the life of a plant. Explain how the food is taken up by the rootlets, is conveyed through the stem, and is then modified by the action in the leaves. Give a lesson on how plants receive nourishment both from the soil and the air. If corn is cultivated very close to the stem when it is quite large the leaves will droop. Explain the reason.

QUESTIONS:—For what are the bristles of hogs used? Speak of the difference between the Holstein and the Hereford cow. Mention two grades of cattle that are noted for giving milk. Why is butter of a deeper yellow color in the spring than in autumn? Name and define the different parts of a plant. Should corn be cultivated close to the roots when it is large?

Sixth Month.

Some plants are flowerless, but the greater number of common plants have flowers. Explain what a flower is and what purposes it serves. Make a study of the stamen and pistils, the stigma and anthers, the pollen, and the ovary. Make a careful study of each of these parts as to their structure and the purposes they serve. What is meant by fertilization and by cross fertilization?

Make a study of the propagation of plants by seeding, cutting, and budding. How are corn, clover, the geranium, and the willow tree propagated? What is layering and of what use is it? Is the selection of seed an important factor in farming?

Dry farming, or the Campbell System of Farming, is recommended for dry seasons and for arid regions. Its aim is to till the soil so the moisture is used to the best advantage. This is done by cultivating the growing crops frequently and in such a manner that the upper layers of the soil are well pulverized. This prevents excessive evaporation by closing the pores. Dry farming has been a great benefit to the arid regions of Canada and the United States.

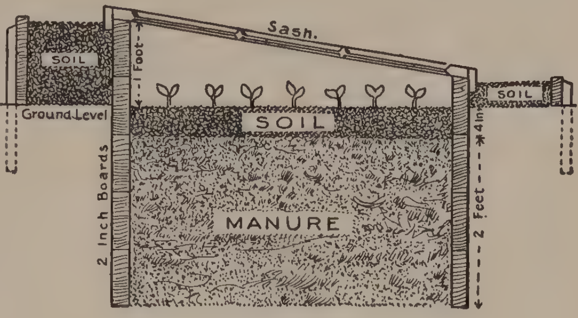
Study the different grasses that are grown for hay in the neighborhood. Collect samples of the native grasses that are valuable for hay. In the arid sections of North America, as from Alberta to Texas, the buffalo grass is an important plant for the reason that it is adapted to a dry climate. Although it is short, it makes fine pasturage and in some localities is cut for hay. Blue stem, or blue bent, next to buffalo grass, is considered of great value. It thrives best in moderately moist soil, but is found in the low and more fertile sections of arid districts. Bunch grass, mesquite, rye grass, and wire grass are common names of other native grasses.

The plants cultivated extensively for hay include timothy, clover, alfalfa, redtop, millet, blue grass, brome grass, and sorghum. Study the grasses cultivated in this neighborhood and learn what advantages they possess over native grasses. Visit a hay mow and observe how the farmer preserves hay for future use.

QUESTIONS:—What is a flowerless, or cryptogamous, plant? In what way are insects of importance in the growth of plants that bear flowers? Explain what is meant by budding, pruning, and grafting. When and where is dry farming of value? Why is clover a valuable plant aside from its use for hay? Describe buffalo grass and tell where it is found. What native grasses are common to this vicinity? When should grass be cut for hay? For seed? Speak of the feeding value of clover and timothy.

Seventh Month.

Prepare a hotbed as shown in the illustration. Plant some seeds that are commonly grown in the vicinity, such as beans, peas, corn, and potatoes. The plants should be studied as they grow.



HOTBED.

If it is not practicable to conduct a small hotbed, then a box of good soil may be prepared in one of the windows of the schoolroom. It is well to plant a few weeds to observe their growth in connection with that of the useful plants. Study plants that live only one year and some that live from year to year. What are such plants called?

Plants as well as animals are subject to diseases. Study the most common diseases known in the vicinity according to the following outlines:

1. Diseases of plants.
    a. Causes and symptoms.
    b. Fungi: Rot, smut, rust, brand, mildew.
    c. Insects: Eelworm, phylloxera, chinch bug, aphis.
    d. Bacteria and physiological diseases.
2. Prevention or cure.
    a. Destroy affected leaves, twigs, or fruit.
    b. Kill spores on seeds before planting.
    c. Select seeds and plants that resist disease.
    d. Use tar, paint, etc., to cover wounds.
    e. Spray with poison to kill insects.
    f. Rotate crops to best advantage.

Diseases of Animals.
    a. Prevention of; symptoms.
    b. Organic and functional diseases.
    c. Diathetic and enthetic diseases.
    d. Bacteria, Effect of on animals.
    e. Tuberculosis, Treatment of.

Common Diseases.
    a. Horse—Colic, spavin, heaves, bots, bronchitis.
    b. Cattle—Tuberculosis, plague (Rinderpest), blackleg, milk fever.
    c. Swine—Cholera, worms, quinsy, trichina.
    d. Sheep—Scab, rot (flukes), tetanus.
    e. Poultry—Gapes, cholera, tapeworms.
    f. Dog—Hydrophobia, distemper, tuberculosis.

Every farmer should give attention to mixed farming. That is, he should raise crops and rear animals. This enables him to cultivate the ground to the best possible advantage, since the feeding of stock enriches the soil and increases the yield per acre. It is a mistake to give attention only to the growth of grain and grass crops and then sell the products. This kind of farming gives rise to what is known as *transportation of the soil,* meaning that the richness is taken out of the land and transported to some other place or even to some other country.

The farmer is protected by a diversity of crops and animals. If the season is unfavorable to one or two particular crops, the others may thrive. Besides, the markets are sometimes glutted by certain classes of farm and live-stock products, hence the farmer who engages in mixed farming will be sure to get good prices at least on certain products.

Prepare a plat of some township to show all the established highways. On this plat indicate the roads that are good, that are passably good, and that are poor. Study the materials in the vicinity that may be utilized in building good roads.

Noted roads built by the Romans in ancient times, such as the Appian Way, are still in use. They transported materials long distances, even without railroads, and their roads have endured fully twenty centuries. Learn what you can about concrete, macadam, asphalt, and brick paving.

QUESTIONS:—What is a hotbed and why do plants grow rapidly in a well-constructed one? Explain the meaning of fungus diseases. Name six diseases that are common to plants and six that are common to animals. What is meant by the transportation of the soil? Is it important to have good roads? Which is cheaper, to build a good road or to repair a poor road from year to year? Describe the Appian Way and tell how it was built.

Eighth Month.

Plant one or more trees. Prepare the ground to receive the trees to the best advantage. Notice the proper depth for planting, spread the roots as much as possible, and prune the limbs so as to balance the tree as nearly as possible. Notice the buds and the new leaves as they appear in the spring.

In a dry season a barrel filled with water may be set near a newly planted tree, the barrel having a small opening near the bottom so the water can run out and constantly irrigate the roots. Weeds should not be permitted to grow near the tree. The ground should not be cultivated when it is so moist that it will stick to the tools.

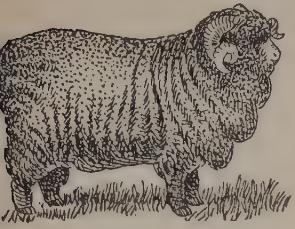
Make a study of tools and implements used by the farmer, such as the plow, harrow, wagon, cultivator, reaper, and threshing machine. How did the ancients thresh their grain? Name the utensils necessary in making a garden.

Not many years ago D. Ward King of Maitland, Mo., devised a drag to smooth the roads. This is known as the King Road Drag. It is made of two pieces of heavy timber, fastened together with crossbars, and one or both of the timbers have an iron bar to protect the wood and cut the surface of the ground. A chain is attached to the drag in such a manner that the timbers will point in a diagonal direction across the highway. When the horses pull the drag, it has a position so the dirt is worked toward the middle of the road. This drag in an

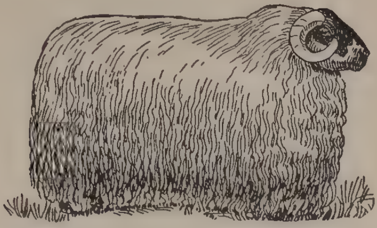
(Method Book, Opp. 122)

FIELD OF SEED ONIONS IN BLOOM IN THE SANTA CLARA VALLEY, CALIFORNIA.

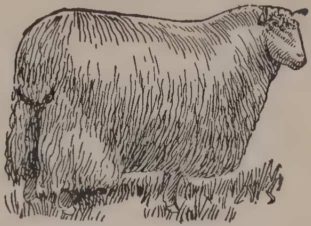
improved form is now used very extensively. It works best after a slight rain, or when the surface is moderately moist.



MERINO RAM.



BLACKFACE HIGHLAND RAM.



CHEVIOT EWE.

The rise in the value of land has had a marked influence upon farming. Formerly much of the land was allowed to grow up in weeds. It is now the object to utilize every foot of the land for some definite purpose. The swamp and wet lands are being drained, the scrubby tracts are being cleared, and the dry districts are being irrigated. Economy in the expenditure of energy pays a large dividend in farming. Study the neighborhood to learn how farming and stock raising can be improved.

The purpose of the farmer should be to enrich the soil from year to year. If forty bushels of corn per acre was a good crop when the soil was virgin, the yield should be even better at present. This will depend entirely upon how the land is cultivated and what amount of fertilizer is used. We cannot expect the soil to maintain its virgin fertility indefinitely, to yield without recompense, but must do our part if we would enjoy the fruit that is in store for the industrious and the intelligent. The unlearned savage may get small returns from the soil, but a richer harvest is in store for the educated agriculturalist of modern times.

Let us learn from the polder farms of the Netherlands, where the soil has been cultivated with growing success for more than five hundred years. Once the bottom of the sea, it is now the richest farming district in the world. Let us profit by the careful husbandry of Switzerland, where the alluvial soil is carried in buckets from the valleys to enrich the higher slopes and hillsides. When we take all this into account, when we consider how waste has been turned into productiveness, we must realize the vast possibilities of agriculture in this country.

QUESTIONS:—In planting trees, should the roots be spread apart or packed closely together? Should the ground near newly planted trees be kept clean so heat and light may penetrate the soil? Why? What is a King Drag? Has the rise in the value of farm lands had a beneficial influence upon farming? Can the soil be enriched so it will produce more than when it was in a virgin condition? What is polder? Contrast farming in Europe with farming in America.

Ninth Month.

Review the lessons for the previous months of the year. Make a careful study of the weather record. What was the average temperature in November? In February? In which month did the sun shine the greatest number of days, in September or in March? How much in inches was the rainfall for the past six months?

Observe whether horses or mules are most numerous in the neighborhood. Study these animals so as to learn which requires the larger amount of grain. What are the prices of good work horses and mules? Write a description of these animals, making it a point to explain the physical difference between them.

Make a study of young farm animals at the age of one and two years. Which will weigh more at one year old, a colt or a steer? Do horses and cattle lie down and get up the same way? At what age is it most profitable to market hogs? How much should a thrifty hog weigh at that age?

Study the leading farm animals in the neighborhood, using as a basis as nearly as possible the following

Outline on the Horse.

I. DESCRIPTION.
  - a. Height, weight, covering.
  - b. Head, ears, mane, tail.
  - c. Legs and hoof; structure and form.
  - d. Body—Skeleton, organs.
  - e. Beauty, grace, docility.

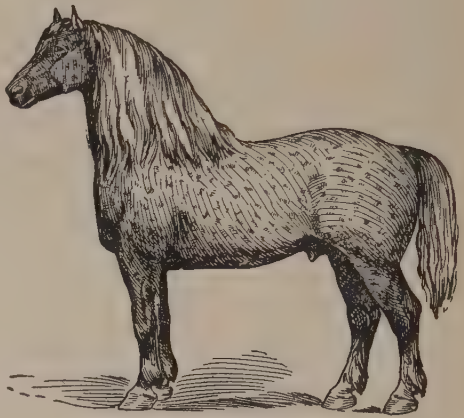
II. CHARACTERISTICS.
  - a. Sense and intelligence.
  - b. Strength, speed, longevity.
  - c. Age at which broken for work.

III. CLASSIFICATION AND USES.
  - a. Draft, race, coach, riding.
  - b. Farming, draying, racing, traveling.
  - c. Utility in war and military maneuvers.

IV. Food—Hay, corn, oats, barley, beans, grass, etc.

V. TREATMENT.
  - a. Feeding and watering.
  - b. How broken for work.
  - c. How and when shod.

VI. BREEDS OF HORSES.
  - a. Draft—Clydesdale, Percheron, Belgian.



BELGIAN HORSE.

  - b. Racing—Bashaw, Hambletonian, Morgan.
  - c. Coach—German Coach, Hackney, French Coach.
  - d. Ponies—Shetland, Galloway, Indian.
  - e. Hybrid—Mule or donkey.

VII. THE HORSE IN LITERATURE.
  - a. Black Beauty—*Anna Sewell.*
  - b. The Arab's Farewell to His Steed—*Caroline Norton.*

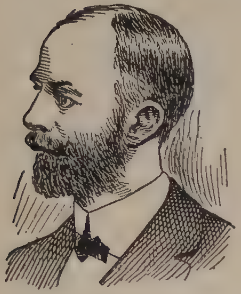
Questions on the Horse.

Compare the value of the horse to that of the camel.
Speak of the fossils of horses and tell where they are found.
What country produces the most beautiful breed of horses?
Mention the leading breeds of horses found in this vicinity.
Did the early European explorers find horses in America?
From what source did the wild horses of South America originate?
What can you say of the docility of the horse?

Practical Farming.

Come forth into the light of things,
Let Nature be your Teacher.
—*Wordsworth.*

THE practical farmer is a *business man* in the literal sense of the term. His aim is to live and prosper—to educate his family and to enjoy the blessings which come from being in close touch with nature.



PROF. P. G. HOLDEN (born in 1855), formerly instructor in agricultural colleges in Michigan and Iowa and conductor of the first railway train to carry agricultural instruction to farmers.

No practical farmer will depend entirely upon one line of enterprise—that is, to raise only one kind of animals or cultivate one class of crops. He will make his enterprises varied, each related as closely to the other as possible, but he will avoid entirely the tendency to engage in several lines of business and make all a failure. For instance, the farmer who engages in diversified farming and at the same time runs a well drill, a threshing machine or a saw mill, usually fails in the end to acquire the success which would be his if he engaged only in diversified farming in a scientific way.

The following outline contains a list of the topics for study in practical farming, giving suggestions on the more important subjects which are involved in this enterprise.

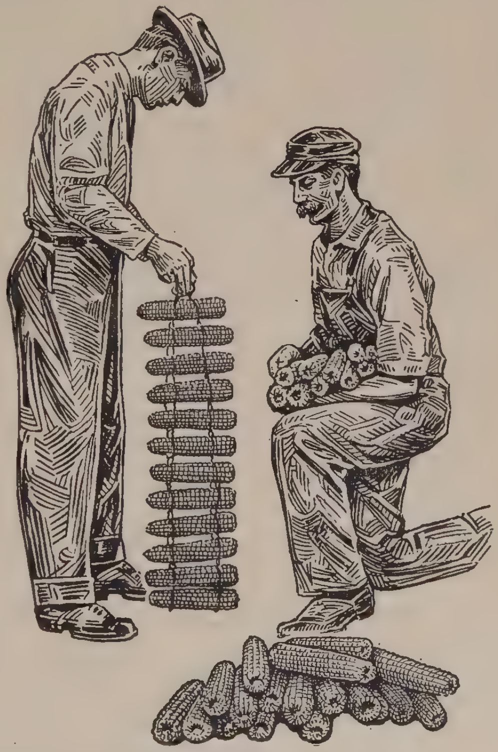
BEES—3 lessons (See page 22).
1. Kinds, description, life history.
2. Hives, bee swarms, hiving.
3. Feeding bees, care of honey, honey as a food.

BIRDS—3 lessons (See page 25).
1. Feeding habits.
2. Beneficial and harmful birds.
3. Protection and extermination.

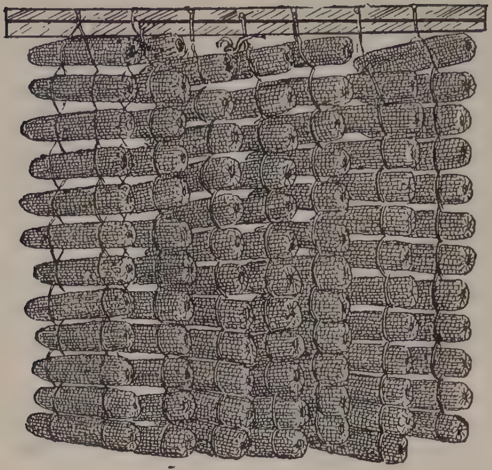
CATTLE—5 lessons.
1. Beef and dual purpose types. Breeds. Characteristics.
2. Dairy type.
3. Feeding and care of cattle.
4. Butchering, cutting and curing.
5. Beef as a food. Cooking.

CONVENIENCES FOR THE FARM AND HOME—2 lessons.
1. For the farm. 2, For the home.

CORN—38 lessons (See page 91).
1. Examination of an ear of corn (roasting-ear stage).
2. Field lesson,—counting the stand.
3. Class report on field lesson, counting the stand.
4. Reports on counting the stand in the home field.



Use binding twine in preparing seed corn to be hung up. No two ears should touch.



Section in a room where seed corn has been hung to dry and keep until spring.

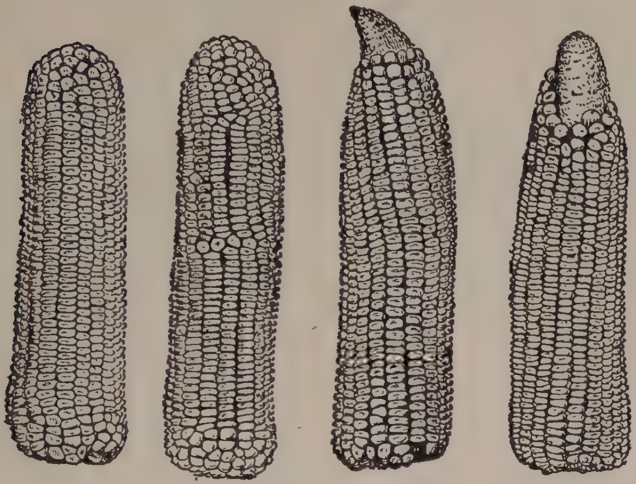
5. Desirable characteristics of the corn plant.
6. Selecting corn in the field for seed or exhibition.
7. Storing seed corn.
8. Pupils' reports on home procedure of seed corn handling.
9. Field lesson,—determining yield according to number of ears.
10. Class room work based on preceding field lesson.
11. Field lesson,—finding out the best stand of corn.
12. Class room work based on preceding field lesson.
13. Corn products.
14. Lesson on the parts of the corn kernel.
15. Corn history, types, varieties.
16. Securing and preparing samples of corn for judging in school.
17. Judging corn (See corn score card).
18. Judging corn; *Will it ripen?*
19. Judging corn; *Will it grow?*

CORN SCORECARD

Points		Score	
Trueness to type of breed characteristics	10		
Shape of ear	10		
Color: (a) Grain	5		
(b) Cob	5		
Market condition	10		
Tips	5		
Butts	5		
Kernels: (a) Uniformity of	10		
(b) Shape of	5		
Length of ear	10		
Circumference of ear	5		
Space: (a) Furrow between rows	5		
(b) Space between kernels at cob	5		
Percentage of corn	10		
Total	100		

The standards upon which the good and bad points of corn are rated are outlined in the scorecard. Although the scorecard is not in general use in the showring, whether it be for grain or livestock, there is no better or more rapid method of learning to judge corn than practice in scoring. Most agricultural colleges teach judging of grain and live stock with considerable preliminary practice in scoring. This work with different qualities of grain helps in fixing an ideal in the mind by which the good and bad points are readily recognized and their relative importance properly estimated.

20. Judging corn; *Does it show improvement?*
21. Practice in scoring and judging corn.
22. Methods of improving corn.
23. Crop rotations.



On the left are two ears of white corn which were developed by careful selection from the original types on the right. Notice how the ends are filled with kernels. It is possible to greatly increase the yield if the right care is exercised in selecting the seed.

24. Place of corn in rotation, and why.
25. How to make corn germination boxes.
26. Testing seed corn.
27. Reports on tests at home.
28. Study of the young corn plant.
29. Requirements of the young plant.
30. Grading seed corn.
31. Testing the corn planter.
32. Purposes of the seed bed.
33. Preparation of the seed bed.
34. How to plant corn.
35. Cultivation of corn.
36. Animal pests in the corn field and their destruction.
37. Weeds in the corn field and their prevention.
38. Insect enemies of corn and their treatment.

Farm Management.

1. Choice of crops and animals to be raised.
2. Division of farm into field, pasture, meadow, etc.
3. Borrowing and lending implements. Trading labor.
4. Buying and selling. The home market. Mail orders.
5. Utilization of by-products and waste materials.
6. Rural roads.

Feeds and Feeding—2 lessons.

1. Classes of foods; 2, Balanced rations.

Forage Crops—2 lessons.

1. Kinds and characteristics; value.
2. Culture.

Hogs—6 lessons (See page 116).

1. Types and breeds.
2. Feeding. Growth and fattening.
3. Diseases. Prevention and cure.
4. Butchering, cutting, curing.
5. Choice of cuts, cooking.
6. Care of sow and pigs.

Home Sanitation—6 lessons.

1. Disposal of garbage.
2. Flies and mosquitoes.
3. Drainage.
4. Water supply. Wells, springs, cisterns.
5. Farm buildings. Location, convenience, utility, care of.
6. Back yard. Sanitation of barns, feed lots and poultry houses.

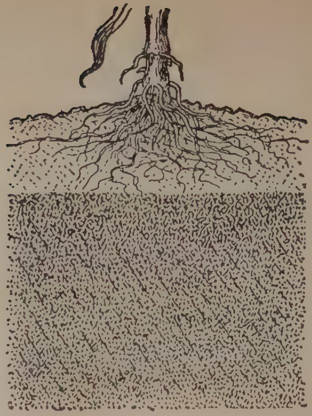
Horses—5 lessons (See page 124).

1. Names of various parts of the body.
2. Types and breeds.

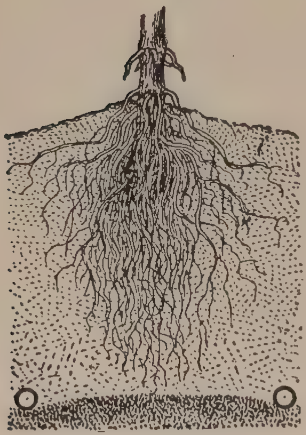
3. Unsoundness and diseases.
4. Care and use.
5. Judging.

Horticulture—15 lessons (See page 111).

1. Caring for the fruit crop.
2. Canning and preserving fruits.
3. Care of winter vegetables.
4. Cooking of vegetables.
5. Gathering and storing garden seed.
6. The hot bed and cold frame.
7. The tomato.
8. The home garden.
9. Buying and transplanting young trees and shrubs.
10. Pruning.
11. Propagation from cuttings.
12. Grafting and budding.
13. Spraying.
14. Beautifying the home grounds.
15. Identification of young plants.



This cut is to show that wet, undrained land does not permit the roots of a plant to penetrate down deep into the ground.



In well drained land the roots of the corn penetrate deep. This will make a better crop. Contrast this with the roots in the illustration where the land is not drained.

Insects—7 lessons.

1. Collection of insects and examples of their work.
2. Classification as injurious and beneficial.
3. Identification by means of depredations.
4. Life history of insects.
5. Methods of extermination.
6. Parasites infesting live-stock; treatment.
7. Insects of garden; treatment.

Machines—4 lessons.

1. Kinds and purposes, construction, operation.
2. Detailed study of some implement.
3. Care of implements and tools.
4. Workshops and tool kits. Repair work.

Milk and Its Products—7 lessons.

1. Milk testing.
2. Records of cows. Profit and loss.
3. Cream starting and ripening.
4. Butter making.
5. Sanitation in the care of dairy products.
6. Cleanliness in barns and in handling cows.
7. Uses of milk in the home.

Oats—5 lessons.

1. Detection and prevention of rust and smut.
2. Judging different varieties.
3. Choice and preparation of seed.
4. Preparation of seed bed, seeding, harvesting.
5. Feeding and food value; cooking.

Plant Growth—5 lessons.

1. Germination and stages of growth.
2. Root systems.
3. Stems and leaves.
4. Flowering and pollination.
5. Fruit and seed forming.

POTATOES—5 lessons.
1. Potato judging.
2. Care of crop.
3. Selection and preparation of seed and treatment of scab.
4. Preparation of seed bed, cultivation, spraying.
5. Ways of preparing as food.

POULTRY—11 lessons (See page 103).
1. Types and breeds of chickens.
2. Feeding and care for winter egg laying—poultry pests.
3. Egg records—marketing of eggs.
4. Eggs and food.
5. Feeding for market. Marketing, dressed and live.
6. Getting ready for poultry shows.
7. Ducks, geese and turkeys.
8. Preparing poultry as food.
9. The poultry house and runs.
10. Hatching, care of chicks.
11. Storing and preserving eggs.

SEEDS—4 lessons.
1. Examination of small seed for weed seed and adulterants.
2. Principles and methods of making germination tests of small grains and other seeds.
3. Class preparation of test boxes.
4. Reading the tests.

SHEEP—6 lessons (See page 123).
1. Wool and mutton types—breeds.
2. Wool production.
3. Manufacture of wool cloth. Some common kinds of woolen cloth.
4. Care and management.
5. Diseases.
6. Butchering and cutting, mutton as food.

SOCIAL LIFE—3 lessons.
1. Spelling school, literary society, church, clubs, contests, athletics.
2. Farmers' institutes, recreation, home reading table.

SOILS—5 lessons.
1. Composition.
2. Capillarity of soil and retentivity of moisture.
3. Effects of cultivation.
4. Manures. Barnyard and green manures.
5. Rotation of crops. Effect on fertility. Value of clover and alfalfa.

WEEDS—6 lessons.
1. Study six to ten or more common weeds that are troublesome on the farm.
2. Collection of specimens and seeds and their identification.
3. How weeds spread.
4. Method of extermination.
5. Effect of weeds on crop and soil.
6. How to prevent introduction of new weeds.

WHEAT—4 lessons (See page 105).
1. Study of wheat plant.
2. Culture.
3. Uses. Manufacture of flour.
4. Bread making.

Seeds and Crops.

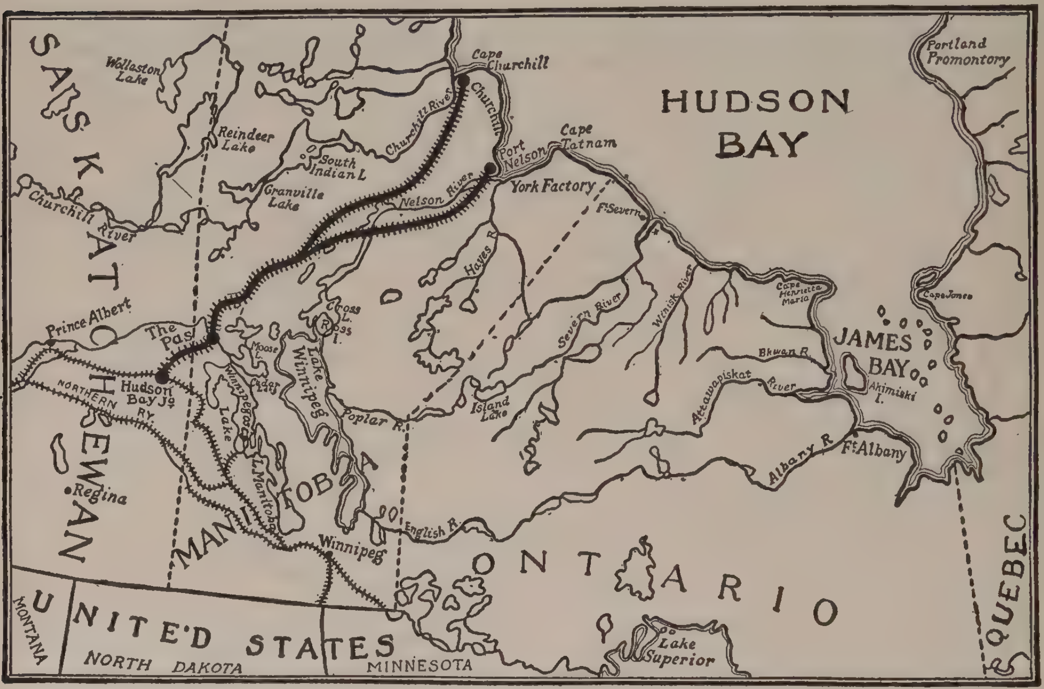
The testing of seed is as important as the cultivation of the ground and the harvesting of the crop. Without good seed it is impossible to realize a rich harvest.

WHEAT. Men are enchanted with the sowing of wheat seeds, with harvesting the golden fields of grain, with the hum of the great threshing machine, with the movement of the great cars and ships laden with the trillions of berries, with the burring of the mighty mills, with the mysteries of the bake oven, and with the never cloying pleasures of white bread covered with June-yellow butter.

If a grain of wheat could tell the story of its brothers, sisters, father, mother, uncles, aunts and its other relatives near and remote, it would equal any fairy tale.

One kind of berry would tell of its origin in England, another in France, another in Germany, and perchance another in Russia; each with its history back in some remote neighborhood, or, may be in still another country, with possibly a legend as to its unknown wild parentage.

Until in recent decades the history of the varieties of wheat, and of the other cereals is not of record. No doubt selection by man in more or less of a blundering way has gone on for many centuries. Hybridizing, by natural agencies, also may have occasionally occurred often enough to aid materially in making new varieties by blending the good qualities of two or more parent kinds.


HUDSON BAY
JAMES BAY
SASKATCHEWAN
MANITOBA
ONTARIO
QUEBEC
UNITED STATES
MONTANA
NORTH DAKOTA
MINNESOTA
Cape Churchill
Churchill
Churchill River
Port Nelson
Cape Tatnam
York Factory
Ft. Severn
Nelson River
Hayes R.
Severn River
Winisk River
Cape Henrietta Maria
Cape Jones
Portland Promontory
Ekwan R.
Attawapiskat River
Akimiski I.
Albany R.
Ft. Albany
Wollaston Lake
Reindeer Lake
South Indian L.
Granville Lake
Churchill River
Prince Albert
The Pas
Hudson Bay Jc.
Northern Ry.
Regina
Moose L.
Cedar L.
Cross L.
Ross I.
Lake Winnipeg
Lake Winnipegosis
L. Manitoba
Winnipeg
Poplar R.
Island Lake
English R.
Lake Superior

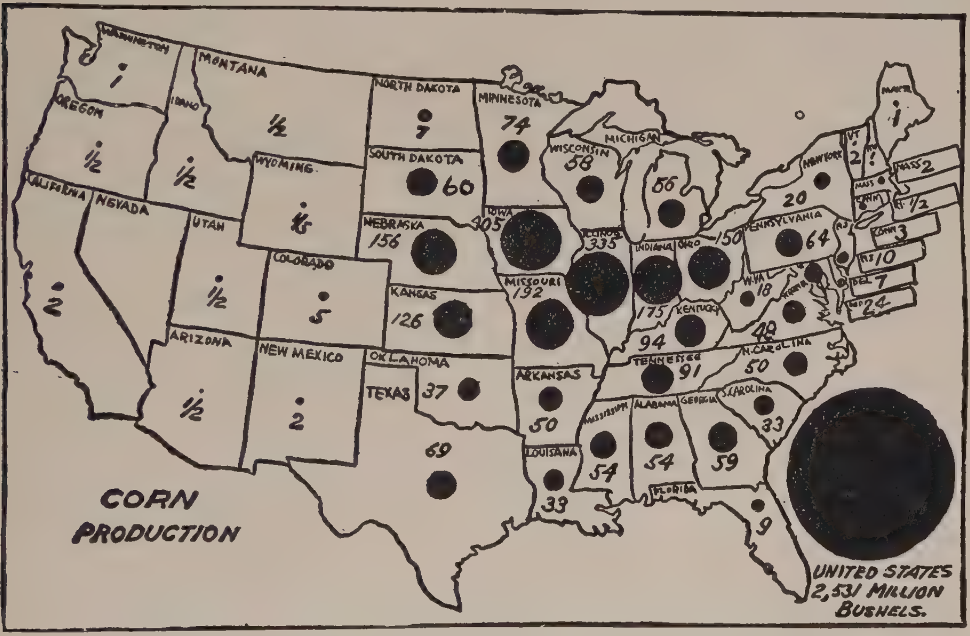
Map of the Hudson Bay region to show the routes which will carry wheat from the prairie Provinces to tidewater and Europe.

It is an ever-existing problem to select the most suitable kind of seed. Many varieties are grown in North America, but most of these are adapted only to certain soils and specific climatic influences. A study of local conditions and varieties will often result in finding the best seed wheat near home, as wheat usually suffers more or less deterioration from change of locality. The points to be kept in mind in selecting a new variety are as follows: A full grain of good weight, stiff straw with ability to stand up in adverse weather, tendency to ripen early (especially in the colder sections), compact head which is not liable to shatter, good bread quality and power to resist insect enemies.

CORN. The average yield of corn at present is about 25 bushels per acre in the United States and it is less in Canada. Experts believe it can be increased to 35 and ultimately to 50 bushels. Selection of the seed, manner and time of planting, fertilization of the soil and kind and extent of cultivation are factors which need consideration. Of these the selection of the seed is considered of first importance. This should be done as follows:

1. Every ear of corn intended for planting should be tested, that is, not less than six kernels (better ten) should be taken from each ear and sprouted, and all weak and bad ears discarded.

2. Every ear intended for planting should be harvested before the fall freezes, and properly preserved.


CORN
PRODUCTION
WASHINGTON
1
MONTANA
½
OREGON
½
IDAHO
½
WYOMING
⅕
CALIFORNIA
2
NEVADA
UTAH
½
COLORADO
5
ARIZONA
½
NEW MEXICO
2
NORTH DAKOTA
7
SOUTH DAKOTA
60
NEBRASKA
156
KANSAS
126
OKLAHOMA
37
TEXAS
69
MINNESOTA
74
IOWA
305
MISSOURI
192
ARKANSAS
50
LOUISANA
33
WISCONSIN
58
MICHIGAN
56
ILLINOIS
335
INDIANA
175
OHIO
150
KENTUCKY
94
TENNESSEE
91
MISSISSIPPI
54
ALABAMA
54
GEORGIA
59
FLORIDA
9
S. CAROLINA
33
N. CAROLINA
50
VIRGINIA
49
W. VA
18
PENNSYLVANIA
64
NEW YORK
20
VT
2
N.H.
1
MAINE
1
MASS 2
R.I. ½
CONN 3
N.J. 10
DEL 7
MD 24
UNITED STATES
2,531 MILLION
BUSHELS.

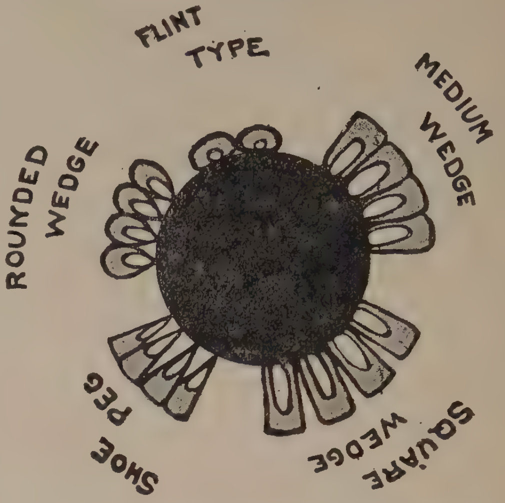
3. The corn should be graded and the planter tested and made ready to drop the proper number of kernels.

4. The corn should be improved by selecting, for the average farm, say 100 of the best ears and planting them on one side of the corn field. The seed for the following crop is to be selected in the fall from the part of the field where the best seed was planted.

Seed corn should be hung up, not piled up. It is circulation of air that is needed and not heat. Especially is this true during the first two weeks after the seed is harvested, while it is still sappy. There is no place better than an upstairs room or attic, where windows can be left open until the seed is dry.

How to Select Good Ears of Corn.

1. A good ear should be cylindrical or nearly so. It should be full and strong in the middle portion, and the circumference should be approximately three-quarters of the length. The rows of kernels should be straight, and not less than sixteen nor more than twenty-two in number. The ear should be from eight and one-half to ten inches long.



Select ears of corn for seed with full and strong kernels, such as the medium wedge shown above. They leave no waste space.

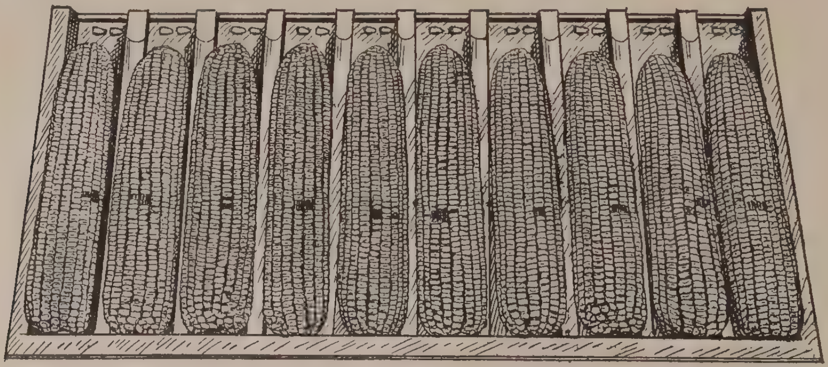
2. The color of the grain should be true to variety, even in shade, and free from mixture. White corn should have white cobs, and yellow corn, red cobs.

3. The tip should not be too tapering. It should be well covered with straight rows of regular kernels of uniform size and shape.

4. Open, swelled, expanded, flattened, and pinched butts are objectionable. The rows of kernels should extend in regular order over the end of the cob, leaving a depression when the shank is removed.

5. The shape of the kernel should conform to the variety standard. The tips of the kernels should be full and strong, leaving no space between them near the cob. Toward the crowns, the edges of the kernels should be so shaped as to leave merely enough space between the rows to facilitate drying. Shrunken or pointed tips and badly rounded crowns are objectionable. The crowns of the kernels should be rather deeply dented, but not pinched or chaffy. The dent should extend evenly across the kernel, and there should be no pointed or sharp margins. The kernels should be about five-sixteenths of an inch wide by five-eighths of an inch long, and six to the inch in the row.

6. The ears should be well matured, firm, and sound. The germs should be uninjured, large, bright, fresh and vigorous looking.



Ten champion ears of dent corn which have been tested and won the prize. Notice the straight rows of kernels and the full ends.

ALFALFA. Alfalfa is regarded with greater favor from year to year as a forage crop. This plant is grown successfully in semi-arid as well as in well watered sections. This plant is very profitable in dry sections because it roots very deeply in the soil. It is safe to say that alfalfa roots penetrate as deep as there is any soil. If the soil is three feet deep, the roots will penetrate three feet. If the soil is ten feet deep, the roots will penetrate ten feet. If the soil is thirty feet deep, the roots will go down thirty feet. Thus, the whole soil is utilized.

The plant uses the whole of the growing season, and it is the only crop that the farmer grows that does this. It is very hardy and does not easily freeze out. As soon in spring as the sun has slightly warmed the earth, the alfalfa is up and growing. It does not become injured by light frosts, but keeps right on growing. Soon after the corn is planted, the alfalfa is ready to cut—by the first of June in most of the region of the corn belt; earlier, in the South; and not much later anywhere. Thus the soil has yielded one crop almost before the corn has begun to take hold at all.

In thirty days from the time it is cut there stands a second crop ready for the mower. After that, in thirty-five or forty days, it will yield a third crop. In many sections, if the third crop is taken off in time, it will produce a fourth cutting. Much of the yield of these later cuttings depends of course upon the presence of moisture in the soil, but it is sure that the alfalfa will use all of the moisture from rainfall, and if irrigation is possible it will use a very large amount of irrigation water. Thus it uses to the best advantage all of the soil, all of the season from early spring till late fall, and all of the soil moisture. Of no other crop can this be said.

The forage of the alfalfa is the richest and most palatable that the farmer can grow. The alfalfa plant, cut at the right time and rightly cured, is very rich in protein. What is protein? It is what makes the red flesh and red blood of the animal. It is what makes nerve and brain and vital process. Alfalfa is rich in bone. It is the best feed for the baby on the farm, the baby colt, the baby calf, the baby lamb, pig and chick. It is good for the young animal because the young must have protein to build his little body. And as it is best for the baby so it is best for the baby's mother. It makes her give much milk and restores her tissues.

How to Start a Field of Alfalfa.

The methods of sowing alfalfa vary with the location and climate. In the arid localities it is a simple matter. The land is usually plowed in winter or early spring, worked down to a good seed bed, and the seed is sown alone in middle spring time. It is irrigated occasionally according to the nature of the soil, and crops are often taken from it the same year, though it is not at its best until the third year, but it will yield a very heavy crop the second year. In some countries it is a practice to sow a light seeding of oats with the alfalfa, in other regions this will not do since oats will lodge or bed down and smother the slender alfalfa plants. In general the better practice in the arid region is to sow the alfalfa alone.

The amount of seed to the acre varies between four and thirty pounds. The smaller amount of seed is sometimes sown when seed is desired from it, as it seeds better not to be thick. There are 14,448,000 seeds in a bushel of alfalfa seed. Therefore, to sow half a bushel to the acre would put 166 seeds to the square foot. To sow fifteen pounds would put 83 seeds. It is evident that it is more essential to have good seed and good distribution of the seed than to use a great amount of seed. About twelve to sixteen plants to the square foot are all that will ever stand, and on rich, deep soils they will not long endure even that much crowding.

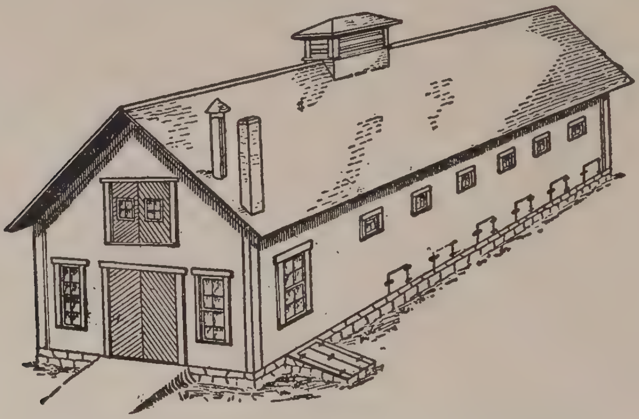
Weeds often come up to crowd the young alfalfa. To destroy these weeds, the field should be clipped with the mower, setting it to run as close to the ground as possible. There may come a yellowish rust that attacks the leaves. To destroy this, cut close with the mower. When preparing land for alfalfa, the field should be left as smooth as practicable, so that the mower may run over it in security. This trouble of the leaf rust will not be so much in evidence in western lands as in the lands east of the Mississippi river.

Care of Feed and Stock.

Practical farming is impossible without good buildings and adequate machinery. Live stock requires good housing for protection against storms and cold weather. This is true especially of young animals, milch cows and work horses, but all classes of animals will do better and require less feed if they are well protected and fed regularly.

Grouping Farm Buildings.

The building will of course depend much on the character of farming followed. It is not best to build large combined barns and stables to house all the animals of many classes, the tools and machines, the forage and grain, under one roof. Instead, it is better to have a stable for the horses, another apart from it for the dairy, if one is kept, though if only two or three cows are kept they can be sheltered in the horse stable or in a leanto at one side or end. As a rule, horses and cows should be separated. Horses are better off for abundant air and in cool or almost cold stabling. Cows giving milk also need abundant air, but will not endure cold well or as low temperatures as make horses thrive. To get best results make these stables apart. An open yard, if possible, paved with concrete made rough, should be provided for both cows and horses. Naturally, one cannot well have both classes of animals in the same yard.



Modern hog house. Notice that a team can be driven through it.

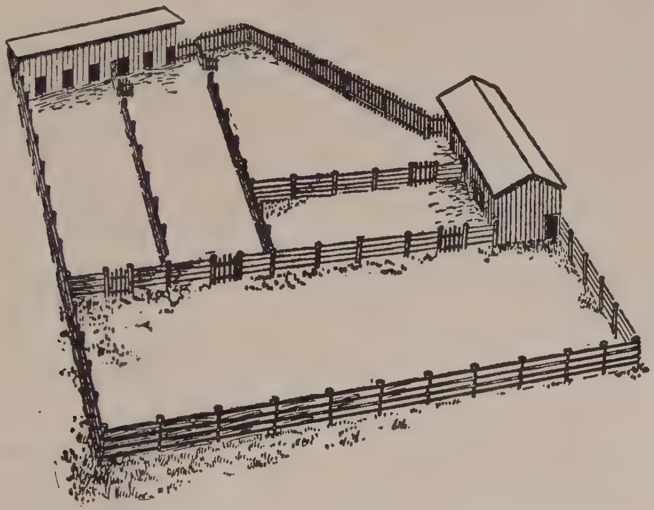
Sheep require a shed by themselves. Sheep are better to have a very great flood of fresh air. They do not mind the cold at all. The sheep should have their own quarters. They need a yard, also. Better have it on the north side of the barn. There will be less mud there; the ground will remain frozen in winter. There will be shade there in summer.

Pigs are best off in a place by themselves. A permanent pigging house is good to have. Concrete the small yards in front of each pen.

Poultry need separate quarters. It is not good to have fowls in the stable or on the hay. The carriage shed is a poor place for hens.

Every farm should have a tool shed. It should be located at a very convenient point, so that it is easy to drive through it and unhitch there from the wagon, drill, mower, or corn planter. A simple shed open at two sides, with posts 10 feet apart, the shed about 30 feet wide and as long as needed, is satisfactory. Have an upper story or half story with a bridge that can be let down. This makes a good place for tools that will not be needed regularly. The great advantage of such a shed is that one can drive right through it crossways and leave any machine or wagon in place.

It is not a simple thing to plan the grouping of farm buildings. Nor can one plan for any farm until he has seen it. A safe rule is to place buildings far enough apart so that all will not be destroyed in case of a fire.



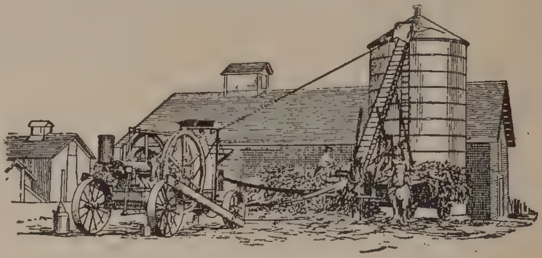
A piggery—the abode for the mother and her young.

Building a Silo.

Every farmer should have a silo, especially if dairying is a part ot the enterprise, as it enables the farmer to preserve in a good condition a large quantity of fodder. The size of the silo should be in proportion to the quantity of feed needed per day. About three or four inches should be used from the top daily when feeding. This is important for the reason that the silage when exposed to the air becomes moldy and unfit for feeding, but if three or four inches are removed evenly from the top each day, the silage will not become damaged by the exposure.

Farmers who wish to use more than three or four inches daily need a second silo. A good size is to build twenty feet in diameter and fifty feet high, If the silo is more than twenty feet in width, it may not be possible to feed sufficient to prevent the top from molding. An elevation of more than fifty feet is too high for the ordinary farm and the silage presses against the sides too much in a higher structure.

It is most convenient for feeding to build the silo up against the barn in which the silage is to be fed. The importance of having a right structure makes it desirable to employ a contractor who has experience in silo building.



Filling the silo with a portable engine.

The foundation of a silo should be solid and well made, owing to the heavy weight which it must support. The necessary thickness of the walls depends upon the material used in constructing the portion which is above ground. A thicker foundation is required for a concrete silo than for one constructed of light staves. It is well to tile the ground, so as to have it well drained and place the foundation below the frost line.

It is necessary to have the inside walls smooth and perfectly perpendicular. This will allow the silage to settle evenly and exclude intervening air. The walls must be air-tight and water-tight. It is necessary to have the walls constructed of material which will not absorb the water from the silage, as otherwise the silage will become dry and begin to mold.

It is a good plan to have a man in the silo to spread the silage so it will be distributed evenly. Care should be taken to tramp the silage around the edge. This will exclude the air and cause the settling to be uniform. Water must be added as the silage is stored, the quantity of water depending upon the amount of moisture in the silage.

Corn is the most desirable crop for silage, but clover, alfalfa and cowpeas are stored to good advantage. A machine should be used to convey the silage to the upper part of the silo, using either a blower or an endless belt with buckets. The silage will keep in its natural state until it is used if handled properly and housed in a good silo.

Sanitation in the Country.

The farm should be the healthiest place in the land, but unfortunately it is not. It has no lack of sunshine and, outside of the home, there is no lack of pure air. Both exercise and wholesome food are abundant.

The chief source of death and inefficiency in the country is the insanitary condition of many farm homes. The farmer living in an insanitary home is especially liable to typhoid fever and consumption, the two scourges of the rural districts.

Typhoid fever is generally due to impure water; and the water is generally rendered impure by reason of an open privy, from which the impurity enters the well by surface wash, or by seepage underground. It may also be carried by flies from some place in the neighborhood where there is a case of typhoid fever. Both of these diseases are now well understood to be germ diseases. It is comparatively easy to avoid typhoid fever.

It is not so easy to avoid consumption, for the reason that there is more or less tuberculosis among the cattle on a considerable per cent of the farms. Where there is tuberculosis among the cattle, there is tuberculosis among the hogs and chickens. In fact, the entire country is so infected with tuberculosis germs that the main effort should lie in the direction of so increasing the vitality of the individual that the system can throw off the infection.

The reason why so many farmers' children, especially girls, are affected with tuberculosis is that there is lack both of sunlight and ventilation in the average farm home. This will be easily remedied when all appreciate the necessity for pure air and sunlight, as well as pure food and exercise. While no lack of ventilation will in itself produce tuberculosis, the lack of vitality due to an insufficient supply of fresh air, especially at night, renders the system unable to resist the germ when introduced.

In every home there should be proper drainage to the cellar, and this drainage should be put in before the foundation of the house is laid. The tile should be two feet under the cellar floor. The cellar should be cemented. It is useless to cement an undrained cellar, for the pressure of the water outside in a wet season will break the cement.

Provision should be made for ventilation, particularly of the sleeping rooms. A chimney in the center of the house, commencing in the cellar, with a brick or two left out at the bottom and also on each floor, and the opening covered with a perforated iron, will draw off the air which has been deprived of its oxygen by breathing. Air can be introduced by lowering the top sash of the window, or by using muslin instead of a sash, thus admitting pure air without a draft.

Where there are modern improvements—and sooner or later these will be in all country homes—including bathroom and sanitary closet, the waste substances can be washed into a septic tank, from which the water flows chemically pure.

Questions on Agriculture.

State some objects to be obtained in the study of agriculture.

When and where was established the first college devoted to agriculture? 38.

Locate some agricultural schools in Canada. 38.

What are agricultural stations? How are they distributed over the world? 39.

Name some organizations helpful to rural life. What benefits should be derived from farmers' institutes? 977.

Suggest some means of fostering and elevating the social side of rural life.

What is the average yield of corn per acre in the United States? State some means of increasing the yield.

Give ten points on the selection of seed corn and on the conditions of soil for planting.

Describe the preparation of a hot bed and name some plants for which it is used.

Name some common diseases among plants; among animals. Suggest remedies for the same.

Give a list of pests common to corn and grain and tell how to destroy them. 1393.

How is alfalfa grown? What is its relative food value for stock? To what soils and climate is it peculiarly adapted? 64.

Of what use are silos? How are they constructed?

Tell how various farm buildings should be grouped. Where is the best location for sheep yards, and why?

What are the advantages of having separate buildings for horses and cattle?

Describe a sanitary dairy. Why is it so important to have frequent tests of cattle and milk? 1787.

State some common menaces to health in country homes. How may these be relieved and avoided?

How to Live on the Farm

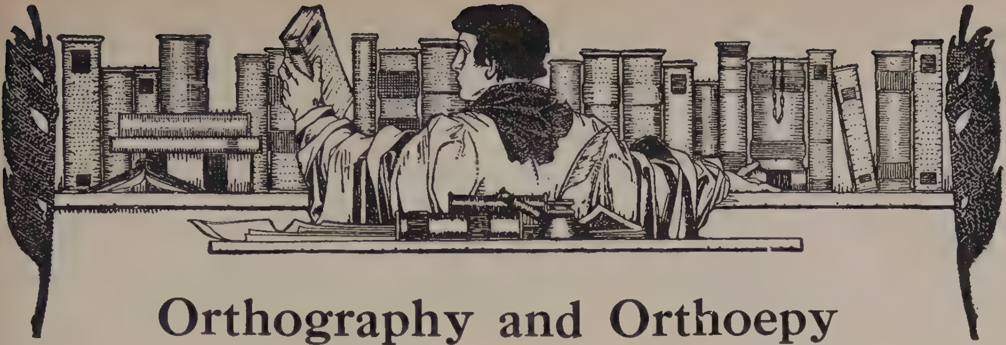
Virginia C. Meredith, Cambridge City, Indiana.

It might be a foretaste of paradise if the money earned on the farms was spent for the betterment of the farm and the farm family. Think you it is a debatable question whether a farmer has a right to buy the adjoining "eighty" until he has installed a furnace and running water in his home? Whether a farmer has a right to buy bank stock before his farm live stock is up to par? Whether a farmer has a right to buy government bonds when his children could use profitably more education? Money may be wisely spent in promoting the social life of young people. Hospitality costs money but it implies an expenditure of time and thought that may make for leadership in right lines. Travel costs money but it brings a return in enriched lives. Books, papers and music cost money but they bring satisfaction not to be parted with when once secured.

An essential factor not to be overlooked and that should not be underestimated is the woman's club; it is easily adapted to the community but it cannot live unless there are a few earnest women to nurse it along through the first trying years—and after that the community will not want to live without it, and soon it embraces the interests of the children and the men, and performs the inestimable service of furnishing good topics for talk in the home.

The welfare of the country is based on the farm family; when the family cherishes ideals and convictions that center in the farm home then all is well—because then material and social conditions are on the up grade, then how to live on the farm is understood.

The queen bee is a queen not because of heredity but because of environment—a bigger cell, better food, more care!



Orthography and Orthoepy

Outline.

I. Definitions—Orthography; Orthoepy; Elementary Sound; Letter; Syllable; Word.

II. Elementary Sounds—Number, classes.
  1. a. Vowels; b. Consonants.
  2. Vowels—Definition; Number (a, e, i, o, u, sometimes w and y).

III. Consonants—Number (21).

IV. Diphthongs, digraphs, trigraphs, double consonants.

V. Substitutes, accent.

VI. Diacritical marks.

VII. Spelling. a. By letter; b. Phonetically.

VIII. Sounds of vowels and consonants.

IX. Articulation and pronunciation.

X. Formation of plurals; possessives.

XI. Use of capital letters.

XII. Rules for spelling.

DEFINITION. Orthography is that division of grammar which treats of spelling and pronunciation. It embraces ORTHOEPY, which treats of articulate sounds and their correct use in pronunciation.

This text and the outlines of study are foremost as a work of general reference in that all but the simple titles are divided into syllables and are marked diacritically. In this wholesome feature it has been the pioneer among cyclopaedias. With a set of this work the student is enabled to study the general topics of knowledge and to become a master in the arts of writing and conversation.

TEACHING ORTHOGRAPHY. In English schools orthography is taught as a branch apart from grammar. The varied and numerous anomalies of our language make this an absolute necessity. Correct pronunciation cannot be secured, in many cases, from the printed form. While, on the other hand, the pronunciation gives the learner no clue to proper spelling.

It may require some effort to lead pupils to understand that d-a-y is pronounced "da" and q-u-a-y "ke," while c-h-o-i-r and q-u-i-r-e are pronounced the same. There are hundreds of words used in our school text-books and in common language that show equal disregard for fixed rules of spelling or pronunciation.

FORMATION OF PLURALS. In the formation of plurals the pupil is often bewildered. Many English words have no distinction in singular or plural forms, while others are formed irregularly. It is difficult for a beginner to understand that the plural of ox is *oxen*; and that the plural of box is *boxes,* not *boxen;* that the plural of house is *houses* and that the plural of mouse is *mice,* not *mouses.* Some words have two plural forms, among the number *brother, die,* and *penny* may be named. Many other examples could be added, if it were necessary, to show that correct spelling and pronunciation are difficult to secure and that, for this reason, orthography is one of the most important branches to be mastered in the grammar schools. The combined experience of educators has led to the belief that very careful and thorough work should be done in this line.

THE PRINTING PRESS. The printing press has done much toward giving the English-speaking people better orthography and more distinct pronunciation than all other causes combined. The people of the present age read more extensively and exhaustively; they carry on a wider range of correspondence and business intercourse than the people of any previous time. All this has done much toward improving the orthographical construction of language.

In general, this is an object lesson. It proves that the nature and extent of the results secured depend very much upon the efforts put forth in securing them. It shows also that pupils may be benefited through channels of practice in oral and written drills, in dictation work, in letter and composition writing, and in every way that their language and orthography may be improved and their vocabulary increased.

DRILLS IN PRONUNCIATION. Usually pupils spell better than they pronounce. This may be attributed to a lack of sufficient work on the elementary sounds and diacritical markings in a majority of schools. For this reason it may be in order to suggest that the teacher place the orthography on the program as of equal importance with language. The pronunciation of words should be constantly guarded by the teacher in class recitation, together with the spelling in both the recitations and in manuscript work. Drills in pronunciation should be given until the student can use each word with facility.

WHAT WORDS MEAN. Teaching the meaning of words is another desirable feature. There are few who, after giving the matter some reflection, will hold that it is of any value for pupils to spell long lists of words in rote without comprehending their meaning or signification, yet it is practiced in a great many of our schools. Would it not be better to lead the pupil to study each new word in the lesson and thus enable him to use it with precision? It is true that his vocabulary is increased only by such words as he can spell, pronounce, and use accurately. This is a matter that every student should understand.

ASSIGNING LESSONS. Lessons should be assigned with care, the teacher pointing out the objects to be attained by study. New words may be pronounced, thus helping the pupils in the preparation. In the next recitation it should be ascertained whether the directions given at the previous recitation have been observed and the objects pointed out have been secured. The recitations should be made instructive, thus encouraging the student to put forth his best effort.

ORAL AND WRITTEN SPELLING. The two methods of teaching spelling are the *oral* and *written,* in which a spelling book and the dictionary are used regularly. The teacher should pronounce the words but once, and have pupils pronounce before spelling orally. Usually it is best to require both oral and written work. The advantages in oral spelling are that pupils learn to pronounce words correctly and that it enables the class to drill on a large number of words in a short time. For this reason it is well adapted for review work both in pronunciation and spelling.

In written spelling the pupil secures a better knowledge of the form of the word, and the division of words into syllables. It requires every pupil to spell all the words pronounced and to obtain a proper idea of the use of capital letters, the hyphen, and other marks. In marking the work, the teacher should take into account all these points as well as to note the penmanship and accuracy with which the work is executed.

DAILY DRILLS. It is advisable to give daily drills on the sounds and markings of words, to spell by letter and by sound as well as writing the word. Geographical names and terms in arithmetic, grammar, and other branches should be spelled as they are used in the class for the first time. New words, or those difficult to spell, should be used in sentences by the pupils. Synonyms, with which our language abounds, should receive early and marked attention. Homonyms of words should be given as opportunity presents. Orthographic parsing, that is, separating words into their elements and giving their classification and modification, is very desirable and profitable.

DIACRITICAL MARKING.

The English alphabet contains fewer letters than the spoken sounds that are in use, hence some of the letters are modified to represent these sounds. In orthography these modifications are indicated by certain marks, known as *diacritical marks.* They are shown in the following table, affixed to certain letters, and the name is stated to the right:

ă	Breve (short).	a̯	Inverted breve (=*ȯ*).
ā	Macron (long).	ā̇	Suspended bar (long obscure).
â	Circumflex (circumflex).	ẽ	Tilde.
ȧ	Dot above (short Italian).	ȼ	Hard c (=*k*).
ạ	Dot below (short obscure).	ç	Cedilla (=*s*).
ä	Dots above (Italian).	æ	Diphthong (as *e* alone).
a̤	Dots below (broad).	o͝o	Large breve (long).

Guide to Pronunciation.

VOWELS.

ă (short), as in *hat, cat.*
ā (long), as in *ale, hate.*
ä (Italian), as in *car, mar.*
ȧ (short Italian), as in *fast, class.*
a̤ (broad), as in *all, fall.*
â (circumflex), as in *care, snare.*
ạ (short obscure), as in *final, spinal.*
ā̇ (long obscure), as in *surface.*
ạ = ŏ, as in *was, what.*
æ = ē, as in *Caesar* (sounded as though they were *e* alone).

ĕ (short), as in *net, met.*
ē (long), as in *me, eve.*
ê (circumflex = â), as in *there.*
ẽ (tilde), as in *her.*
ẹ (short obscure), as in *patent.*
ē̇ (long obscure), as in *delay.*
ẹ = ĭ, as in *pretty.*

ĭ (short), as in *hit, bit.*
ī (long), as in *kite, mite.*
ĩ (tilde), as in *sir.*
ī̇ (long obscure), as in *idea.*

ŏ (short,), as in *pop, hop.*
ō (long), as in *cone, bone.*
ô (circumflex = a̤), as in *for.*
ō̇ (long obscure), as in *hero.*
o͝o (short), as in *book, brook.*
o͞o (long), as in *moon, spoon.*
o̭ = û, as in *word.*
o̤ = o͞o, as in *who.*
ȯ = o͝o, as in *wolf.*
ȯ = ŭ, as in *son.*

ŭ (short), as in *rut, cut.*
ū (long), as in *muse, fuse.*
û (circumflex), as in *turn, urn.*
ū̇ (long obscure), as in *unite.*

w is a vowel only after a vowel, when it forms the second element of certain diphthongs, as in *few, how.*

y̆ (short) = ĭ, as in *hymn.*
ȳ (long) = ī as in *by, cry.*

CONSONANTS.

c (hard) = k, as in *cat, cape.*
ç (cedilla) = s, as in *cell, façade.*
ḡ (hard), as in *dog, gave.*
ġ (soft), as in *gem, genile.*
k for the German ch, as in *ich. Bach* (bäk).
ü for the German ü, as in *Blücher, Grünberg.*
ö for the German ö, as in *Göttingen, Görgey.*
n for the French n, as in *bon, Brĕton* (brā̆-tôn′).

Rules for Spelling.

RULE I.—Final *e* followed by a vowel.

Final *e* of a primitive word is dropped on taking a suffix beginning with a vowel. Examples: blame+able=blamable; guide+ance=guidance; come+ing=coming; force+ible=forcible; obscure+ity=obscurity.

Exception 1.—Words ending in *ge* or *ce* usually retain the *e* before a suffix beginning with *a* or *o,* for the reason that *c* and *g* would have the hard sound if the *e* were dropped. Examples: peace+able=peaceable; change+able=changeable; courage+ous=courageous.

Exception 2.—Words ending in *oe* final retain the *e* to preserve the sound of the root; as shoe+ing=shoeing; hoe+ing=hoeing. The *e* is retained in a few words to prevent their being confounded with similar words, as singe+ing=*singeing,* to prevent its being confounded with *singing.*

RULE II.—Final *e* followed by a consonant.

Final *e* of a primitive word is retained on taking a suffix beginning with a consonant. Example: pale+ness=paleness; large+ly=largely.

Exception 1. -When the final *e* is preceded by a vowel, it is *sometimes* omitted. Example: due+ly=duly; true+ly=truly; whole+ly=wholly.

Exception 2.—A few words ending in *e* drop the *e* before a suffix beginning with a consonant. Example: judge+ment=judgment; lodge+ment=lodgment; abridge+ment=abridgment.

RULE III.—Final *y* preceded by a consonant.

Final *y* of a primitive word, when preceded by a consonant, is generally changed into *i* on the addition of a suffix.

Exception 1.—Before *ing* or *ish,* the final *y* is *retained* to prevent the doubling of the *i.* Example: pity+ing=pitying.

Exception 2.—Words ending in *ie* and dropping the *e* by Rule I. change the *i* into *y* to prevent the doubling of the *i.* Examples: die+ing=dying; lie+ing=lying.

Exception 3.—Final *y* is sometimes changed into *e;* as duty+ous=duteous; beauty+ous=beauteous.

RULE IV.—Final *y* preceded by a vowel.

Final *y* of a primitive word, when preceded by a vowel, should not be changed into an *i* before a suffix. Example: joy+less=joyless.

RULE V.—Doubling.

Words of one syllable (monosyllables), and words accented on the last syllable, when they end with a single consonant, preceded by a single vowel, or by a vowel after *qu,* double their final letter before an additional syllable that begins with a vowel. Example: rob+ed=robbed; fop+ish=foppish; squat+er=squatter; prefer+ing=preferring.

Exceptions.—*X* final, being equivalent to *ks,* is never doubled; and when the derivative does not retain the accent of the root, the final consonant is not always double; as prefer+ence=preference.

RULE VI.—NO DOUBLING.

A final consonant, when it is not preceded by a single vowel, or when the accent is not on the last syllable, should remain single before an additional syllable; as, toil+ing=toiling; cheat+ed=cheated; murmur+ing=murmuring:

Geographical Prefixes and Suffixes.

Key to Abbreviations.

Arab.=Arabic.
A. S.=Anglo-Saxon.
Celt.=Celtic.
D.=Dutch.
Eng.=English.
Fr.=French.
Ger.=German.
Gr.=Greek.
Heb.=Hebrew.
Ind.=Indian.
Ir.=Irish.
It.=Italian.
Lat.=Latin.
Per.=Persian.
Port.=Portuguese.
Span.=Spanish.

AB, *or* AUB [Per.], water; a river.

Doab, two rivers; *Punjaub,* five rivers.

ABING, *or* ABBOT [A. S.], an abbot.

ABBE [Fr.], an abbot. *Abingdon; Abbotsbury; Abbeville.*

ACQUA [It.], AGOA [Port.], AGUA [Span.], AIGUE, AIX, EAUX [Fr.], water.

Acquapendente, hanging water; *Agoa Fria,* cold water; *Agua Dulce,* sweet water; *Aix-la-Chapelle,* waters of the chapel; *Bordeaux,* border of the waters.

ALBUS [Lat.], white. *Alps; Alpine; Albion.*

ALTUS [Lat.], high; [Span.], alta.

Altamura, high wall; *Alta California,* Upper California.

ANTI [Gr.], opposite. *Antarctic; Antitaurus.*

ASH [A. S.], ash. *Ashfield; Ashton* (town); *Ashland.*

AVEN, *or* AVON [Celt.], water.

Avondale; Strathaven, valley of the Avon.

BAB [Arab.], a gate; a court.

Babylon, court of Belus; *Bab-el-Mandeb,* gate of tears.

BAD, *or* BADEN [Ger.], bath or baths.

Badenhausen, bath houses; *Carlsbad,* Charles's bath.

BAB, BALL, BALLY [Celt.], a township; a village.

Ballyclare, town on the plain.

BAR [Sanskrit], country. *Malabar,* country of mountains.

BATON [Fr.], stick. *Baton Rouge,* red stick.

BAYOU [Fr.], stream. *Bayou Pierre,* Peter's Creek.

BEAU, BEL, BELLE [Fr.], beautiful.

Belmont (mountain); *Belleisle; Puerto Bello,* fine harbor.

BEN [A. S.], a bean. *Bennington* (town); *Binfield.*

BEN, *or* PEN [Celt.], a hill or mountain.

Ben Lomond, beacon mountain; *Ben Nevis,* cloud-capped mountain

Berg [Ger.], a hill. *Adelsberg,* noble hill; *Schwartzenberg,* black mountain.

Beth [Heb.], a house.
Bethel, house of God; *Bethlehem,* house of bread.

Bon, bonne [Fr.], and bueno *or* buena [Span.], good; fine.
Terrebonne, good land; *Buena Vista,* fine view; *Buenos Ayres,* good air.

Bridge [Eng.], *or* bruck [Ger.], a bridge.
Cambridge, over the Cam; *Innsbruck,* over the Inn.

Brook, a brook. *Westbrook; Brookfield; Overbrook.*

Burg [A. S. and Ger.], borg [Dan.], and bourg [Fr.], town or borough.
Augsburg, town of Augustus; *Cherbourg,* Caesar's town; *Edinburgh,* Edwin's town; *Canterbury,* city of Kent; *Newburg; Oldenburg; Harrisburg.*

Burn, born, bourne, bone [A. S.], brunn [Ger.], a brook.
Burnham, brook-home; *Sherborn,* clear brook; *Heilbronn,* fountain of health; *Schönbrunn,* beautiful fountain.

By [A. S.], a village or town.
Kirkby, church town; *Rugby,* rock town; *Ashby.*

Caster, cester, chester [A. S.], a camp or fortress.
Lancaster, fortress on the Lune; *Dorchester,* camp by the river; *Gloucester,* fair city or camp.

Costa [Span.], coast. *Costa Rica,* rich coast.

Castle [Eng.], château [Fr.], cassel [Ger.], a castle.
Newcastle; Castleton (town); *Neufchâtel,* new castle.

Dale, del [Eng.], thal [Ger.], daal [D.], vale or valley.
Dovedale; Bloemendaal, vale of flowers.

Dam, damm [D.], a dike or dam.
Amsterdam, on the dam of the Amstel; *Rotterdam,* on the dam of the Rotter.

Dover [A. S.] a ferry. *Andover; Hardover.*

Dun, *or* don [Celt.], a hill, or a fort on a hill.
Dundee, fort on the Tay; *Snowdon,* snow-hill.

East, est, es [A. S.], ost [Ger.], east.
Eastham, east home; *Easton,* east town; *Essex,* East Saxony; *Osterreich,* or *Austria,* east kingdom.

Eisen [Ger.], iron.
Eisenstadt, iron town; *Eisenberg,* iron mountain.

Ey, ea [A. S.], an island.
Anglesey, island of the Angles; *Jersey,* Caesar's Island; *Romney,* marsh island.

Fair [Eng.], beautiful.
Fairhaven; Fairmount; Fairfield; Fair Oaks.

Field [Eng.], feld [A. S.], a field.
Marshfield; Winfield, field of victory; *Litchfield,* field of dead bodies.

Folk [Eng.], people. *Norfolk* (north); *Suffolk* (south).

Ford [A. S.], furt *or* furth [Ger.], a ford.
Bradford (broad); *Hartford* (hart); *Frankford* (free).

Frank [Ger.], free; noble. *France; Frankfort.*

Ham [A. S.], heim [Ger.], home.
Nottingham, home with caves; *Durham,* home for deer; *Waltham,* home in the wood.

HIGH [Eng.], HOCH, HOHEN [Ger.], high.
Highgate; Hohenlinden, high lindens.

HURST [A. S.], wood; forest.
Lyndhurst, forest on the Lynn; *Brockhurst,* forest on the brook.

KILL [D.], creek. *Bushkill; Fishkill; Schuylkill* (hidden).

LEY, *or* LY [A. S.], field; meadow; pasture.
Paisley, moist pasture; *Beverly,* field of the beaver.

MILL [Eng.], MÜHL [Ger.], mill.
Millbrook; Mühlhausen, mill village.

MOUNT [Eng.], MONT [Fr.], MONT [Span.], MONTE [It.], mountain.
Fairmount; Mont Blanc, white mountain; *Montserrat,* jagged mountain.

NEGRO [It. and Span.], black.
Montenegro, black mountain; *Negropont,* black bridge; *Rio Negro,* black river.

NORTH [Eng.], NORD [Fr. and Ger.], north.
Northumberland, north of the Humber; *Norwich,* north village; *Norway,* north way; *Rio del Norte,* river of the north.

POLIS [Gr.], a city.
Sevastopol, city of Augustus; *Tripoli,* three cities; *Indianapolis; Annapolis.*

PORT [Eng.], PUERTO [Span.], haven.
Bridgeport; Portland; Puerto Rico, rich haven or port.

RIO [Span. and Port.], a river.
Rio Grande; Rio Negro; Rio de la Plata, river of silver.

SCHWARTZ [Ger.], black.
Schwartzenberg, black hill; *Schwartzenwald,* black forest.

SIERRA [Span.], SERRA [Port. and Lat.], a saw or mountain.
Sierra Blanca, white mountain; *Sierra Morena,* red mountain; *Sierra Nevada,* snow mountain; *Sierra Madre,* mother mountain; *Sierra Leone,* lion mountain.

STADT [Ger.], town. *Carlstadt,* Charles's town.

STAN [Per.] country.
Hindoostan, country of Hindoos; *Kordistan,* country of Koords; *Turkestan,* country of Turks; *Afghanistan.*

STOCK, STOKE, STOL, STOW [A. S.], place or seat.
Woodstock; Stockbridge; Bradstow, broad place.

STRAT [A. S.], STRASSE [Ger.], street.
Stratford, ford by the street; *Stratton,* street town; *Strassburg,* town on the highway.

THORPE, THROP, TROP [A. S.], a village.
Althorp, old village; *Winthrop,* village of the furze.

TOWN [Eng.], TON, TUN [A. S.], a town.
Charlestown; Charleston; Brighton, Brighthelm's town; *Sutton,* south town; *Boston,* St. Botolph's town.

WICH, WICK [A. S.], a town; a bay.
Greenwich; Norwich; Sandwich; Dantzic, village of the Danes.

WORTH [A. S.], mansion, manor, or town.
Bosworth, St. Botolph's town; *Kenilworth,* mansion on the canal.

Anthropology

Know then thyself, presume not God to scan;
The proper study of mankind is man.
—*Pope.*

All that tread
The globe are but a handful to the tribes
That slumber in its bosom.
—*Bryant.*

ANTHROPOLOGY is the science of man and mankind. In the broadest signification it includes the entire field of sciences which relate to human life, especially government, history, language, literature, philosophy, physiology, psychology, and religion.

This text and the outlines of study contain a greatly diversified fund of knowledge on this subject. It affords the opportunity to study man not only as a zoölogical genus, but furnishes the means to investigate the sources of human development. Beginning with primitive life, it traces the growth upward in the expanse of mind and the evolution of culture.

The outlines in this subject cover the more important field. They may be considered in connection with other titles that are outlined under related topics, such as AGRICULTURE, BIOGRAPHY, LITERATURE, NATURE STUDY, etc. The student is likewise referred to the articles on the following

Correlated Subjects:

Aesthetics.
Age.
Agriculture.
Archeology.
Barrow.
Boomerang.
Burial.
Cannibal.
Caste.
Caucasian.
Cave Dwellers.
Clan.
Cliff Dwellers.
Cremation.
Cuneiform.
Darwinism.
Demon.
Dress.
Education.
Ethics.
Ethnology.
Evolution.
Fable.
Facial Angle.
Fetich.
Folklore.
Ghost.
Giants.
God.
Hair Dressing.
Hieroglyphics.
History.
Indians.
Labor.
Lake Dwellings.
Language.
Law.
Legend.
Magic.
Malays.
Man.
Marriage.
Mermaid.
Mongolian.
Mound Builders.
Mythology.
Nature Worship.
Negro.
Polygamy.
Religion.
Sacrifice.
Skull.
Slavery.
Stonehenge.
Superstition.
Suttee.
Tomahawk.
Totemism.
Wigwam.
Witchcraft.

Questions on Anthropology.

Define anthropology and name some sciences that are closely related to it. 111.

With what stage of life should the study of this subject begin?

How does Darwin account for the origin of man?

State some other theories regarding man's origin.

In what respect is man superior to other animals?

What does the science of biology include?

Under biology, how is living matter treated?

Through whom did the word *sociology* come into use? With what is it closely connected? 2669.

Name some of the early writers on sociology, ethnology, and evolution.

Why is the mythology of the Greeks, Romans, and Egyptians considered of great interest?

Compare the primitive means of communication with those of to-day.

What can you say of the homes, food, apparel, etc., of the early peoples?

Who is considered as the greatest promoter of education among the Negroes of North America?

To what race do the people of Northern Canada belong? Why are they called Eskimos?

Which race is least in population? Which is most numerous?

How extensive is the distribution of the white race?

State some of the early advances of civilization among the Chinese.

Man in Literature.

Men are but children of a larger growth;
Our appetites are apt to change as theirs,
And full as craving too, and full as vain.
—*Dryden.*

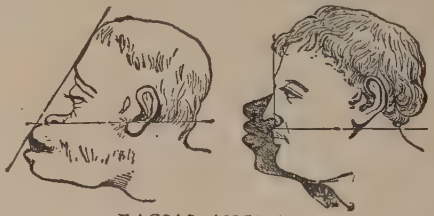
In the sweat of thy face thou shalt eat bread,
Till thou return unto the ground; for thou
Out of the ground wast taken: know thy birth,
For dust thou art, and shalt to dust return.
—*Milton.*

My heart is awed within me, when I think
Of the great miracle that goes on
In silence round me—the perpetual work
Of Thy creation, finished, yet renewed
Forever. Written on Thy works I read
The lesson of Thy own eternity.
Lo! all grow old and die—but, see again!
How on the faltering footsteps of decay
Youth presses—ever gay and beautiful youth
In all its beautiful forms. These lofty trees
Wave not less proudly that their ancestors
Moulder beneath them. Oh, there is not lost
One of earth's charms: upon her bosom yet,
After the flight of untold centuries,
The freshness of her far beginning lies,
And yet shall lie.
—*Bryant*

Races of Man.

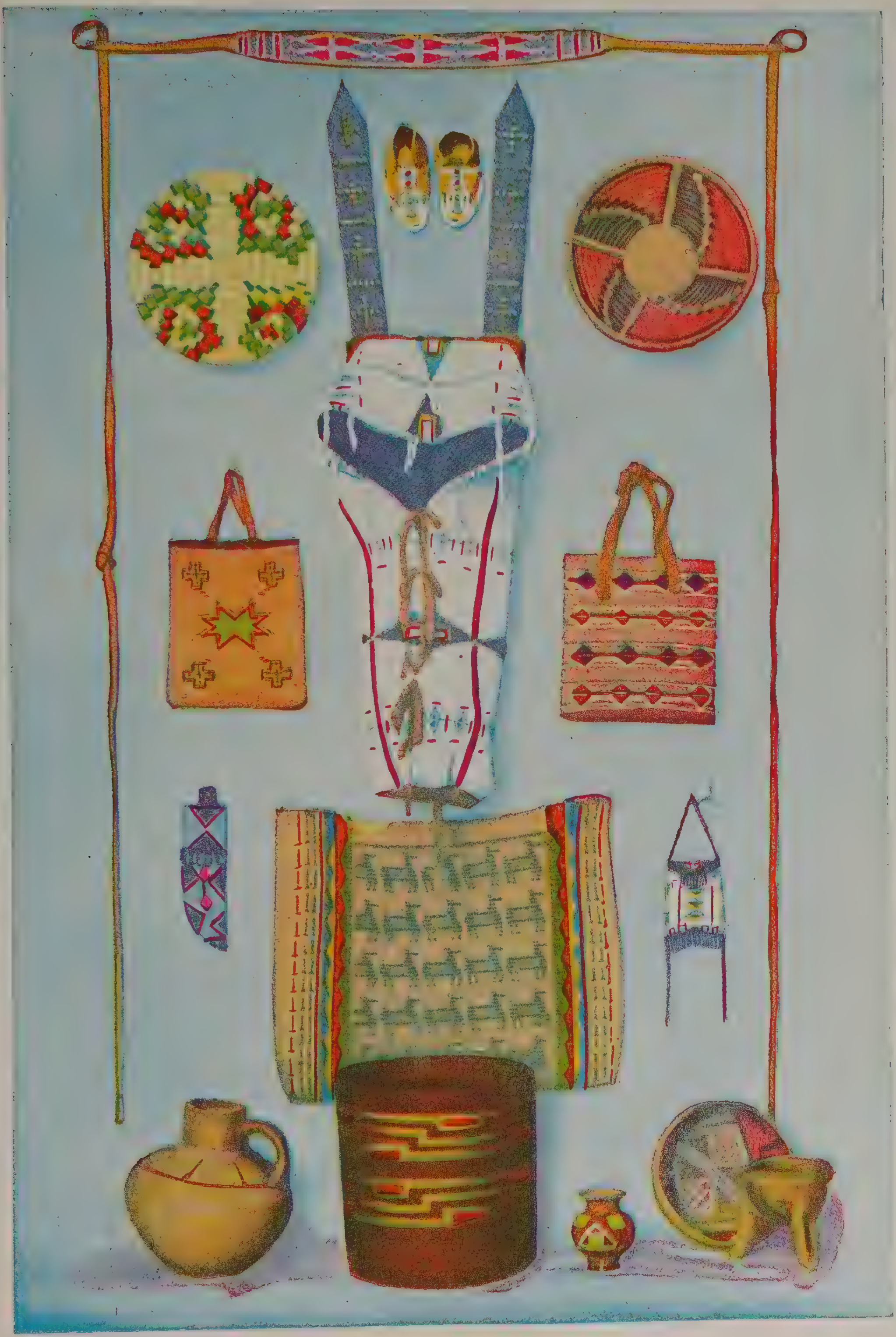
I. PRIMARY.

- 1. Caucasian, or White Race.
  - A. Location—Europe, Southwestern Asia, America, and colonies.
  - B. Description.
    - a. Round, oval head.
    - b. Fair complexion.
    - c. Arched forehead.
    - d. Symmetrical features.
    - e. Vertical teeth.
    - f. Smooth hair.
    - g. Ample beard.
  - C. Divisions.
    - a. Hamitic—Originally inhabited Palestine, Arabian Peninsula, and Nile valley.
    - b. Semitic, or Syro-Arabian.
      - Modern—Syrians, Jews, Arabians, Abyssinians.
      - Ancient—Assyrians, Babylonians, Moabites, Edomites, Phoenicians, Ammonites, Ishmaelites.
    - c. Indo-European, or Aryan—Japhetic (Most civilized).
      - 1. Germanic—Germans, Dutch, English, Flemings, Danes, Swedes, Norwegians.
      - 2. Celts—Welsh, Irish, Scots, Bretons of France.
      - 3. Ancient Greeks.
      - 4. Romanic—French, Italians, Spaniards, Portuguese.
      - 5. Slavonic—Russians, Croats, Poles, Czechs.
      - 6. Iranians—Afghans, Persians, Baluchis.
      - 7. Hindus.
- 2. Mongolian, or Yellow Race.
  - A. Constitute one-third of the earth's population.
  - B. Location—Most of Asia, parts of Europe not occupied by whites, and Northern America.
  - C. Distribution.
    - a. Central Asia—Tibetans, Chinese, Indo-Chinese, etc.
    - b. Northern Asia—Samoyedes, Ugrian or Finnic, Tungusians, Yakuts.
      - Others—Coreans, Japanese, Kamchatdales, Mongols, etc.
    - c. Europe—Turks, Magyars, Lapps, Finns.
    - d. America—Eskimos.
  - D. Description.
    - a. Angular face.
    - b. Broad head.
    - c. Oblique eyes.
    - d. Straight, coarse, black hair.
    - e. High cheek bones.
    - f. Pale lemon to brownish-yellow skin.
    - g. Scanty beard.
    - h. Medium stature.



FACIAL ANGLES.

- 3. Negro, or Black Race.
  - A. Location—Africa, portions of warm zones.
  - B. Description.
    - a. Narrow and elongated head.
    - b. Projecting jaws.
    - c. Thick lips.
    - d. Crisp, curly hair.
    - e. Black, dusky skin.
    - f. Scanty beard on upper lip.
    - g. Long arm.
    - h. Broad feet.



(Method Book, Opp. 148)

ART OF THE AMERICAN INDIANS.

This illustrates specimens of art work made by the American Indians, including a belt woven with porcupine quills, baskets, pottery, bags made of hemp, a knife sheath, moccasins, beaded papoose carrier, etc.

- C. Species.
    - a. Western Africa—Jaloffs, Mandingos, Ashantees.
    - b. Eastern—Gallas.
    - c. North Central—Tibboos.
    - d. South Central—Congos.
    - e. Southern—Hottentots and Kafirs.
- D. Civilization.
    - a. Gallas—Cruel, handsome, and gifted.
    - b. Hottentots—Most debased.
    - c. Many becoming profound and enlightened scholars when subjected to the advantages of civilization and education.
    - d. Population in United States, 10,500,000.

II. SECONDARY.

- 1. Malay, or Brown Race.
    - A. Location—Island of Madagascar, Malay Peninsula, Malay Archipelago, the islands of the Indian and Pacific oceans.
    - B. Description.
        - a. Resembles the Mongolians.
        - b. Horizontal eyes.
        - c. Coarse, straight hair.
        - d. Dark olive skin.
    - C. Characteristics.
        - a. Simplicity of language and expression.
        - b. Excellent traders.
        - c. Semicivilized.
    - D. Contrasts.
        - a. Papuans—Dark brown, even black.
        - b. Malay—Normal.
- 2. Australian.
    - A. Subspecies of Papuan branch of the Malays.
    - B. Description.
        - a. Deep-set eyes.
        - b. Large head.
        - c. Abundant beard.
        - d. Dark hair.
        - e. Dark brown skin.
        - f. Almost destitute of civilization.
    - C. Inhabits all of Australia not inhabited by whites.
- 3. American, or Copper-Colored Race.
    - A. Resemble Mongolians (Top of head more rounded, sides less angular).
    - B. Location—America.
        - a. Andean people—Advanced in civilization and understood metallurgy.
        - b. Central America class—Of still higher and more ancient civilization.
    - C. Once numerous and powerful.
    - D. Rapidly disappearing.
    - E. Mixed with Spanish and whites.

III. NUMERICAL STRENGTH.

- 1. Mongolian, 650,000,000.
- 2. Caucasian, 575,000,000.
- 3. Negro, 175,000,000.
- 4. Malay, 40,000,000.
- 5. American, 20,000,000.
- 6. Australian and mixed races, 40,000,000.

Questions on the Races of Man.

Into how many classes does the most recent classification divide the human race?

Upon what are these classifications based? Who may be mentioned as good authority on this branch of knowledge?

To what three main divisions does the white race belong? 512.

Compare the white race intellectually and morally with the other races.

Which race is the greatest in number? The least?

Name some nationalities of the yellow race.

Describe a Negro. To what continent is the Negro native?

What standing do the Hottentots have among other classes of the world?

How did the black race become scattered?

Where are the Malays located? For what are they noted? 1684.

What is said of the possible improvement of the Australian race?

Name some of the chief factors necessary to civilizing a nation.

Account for the speedy colonization and civilization of America.

Who are the Jews, Japs, Filipinos, Finns, Papuans, Creoles, and Gallas?

Which nation contains the largest per cent. of the world's population?

Dwellers in Cliffs and Caves.

I. In Caves.
  1. Early habitations—Belgium, France, Great Britain.
  2. Later peoples—Southwestern part of the United States and Mexico.
  3. Dwellings.
    A. Location—In natural caves.
      Under shelter of rocks.
      Near streams of water.
      Wide entrance, high roof, light and airy.
  4. Animals—Cave bear, saber-toothed tiger, hyena, etc.
  5. Weapons and utensils—Made of wood, bone, horn, and stone.
  6. Raiment—Animal skins sewed together.
  7. Decorations—Crude paintings and carvings.
  8. Ornaments—Made of ivory and teeth of animals.

II. In Cliffs.
  1. Where located.
    A. California.
    B. Arizona.
    C. New Mexico.
    D. Mexico.
  2. Homes.
    A. Made in natural cliffs along Rio Grande and Colorado rivers.
    B. Built of adobe blocks, plastered inside, and clayed on exterior.
    C. Rather square windows and doors.
    D. Inclosures made by stone slabs, skins, or blankets.
    E. Single dwelling—For one family in small recess.
    F. Communal—Serving many families in larger quarters.
    G. Reached by ladders and rocky stairways.
    H. Collection of material—By women and children.
  3. Traces.
    A. Ruins of dwellings.
    B. Exhumed bodies.
    C. Articles of manufacture—Pottery, carvings, missils, etc.
  4. Occupations.
    A. Agriculture.
      a. Raising of domestic animals.
      b. Products—Maize, cotton, tobacco.
    B. Manufacture.
  5. Government—Tribal.
  6. Extinction—By Apache Indians.

Questions on Cliff and Cave Dwellers.

Where were the earliest traces of the cave dwellers found? 513.
What can you say of the state of civilization among these peoples?
According to discovered relics, what animals were known to them?
Where are remains of cliff-dwellers found at present? 602.
Explain the formation of natural cliffs and terraces.
Describe the construction of the houses occupied by cliff-dwellers.
What did they use for windows and doors?
What means for ascent were made to reach these elevated dwellings?
To what extent were they skilled in handicraft and other industries?
What recent discoveries have been made regarding these people?
Describe the industry of pottery among them.
What reason would you assign for the extinction of the cliff-dwellers?

The American Indian.

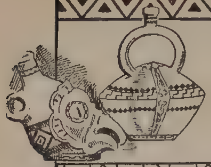
Not many generations ago, where you now sit, circled with all that exalts and embellishes civilized life, the rank thistle nodded in the wind, and the wild fox dug his hole unscared. Here lived and loved another race of beings. Beneath the same sun that rolls over your heads, the Indian hunter pursued the panting deer; gazing in the same moon that smiles for you, the Indian lover wooed his dusky mate. Here the wigwam blaze beamed on the tender and helpless, the council fire glowed on the wise and daring. Now they dipped their noble limbs in your sedgy lakes, and now they paddled the light canoe along your rocky shores. Here they warred; the echoing whoop, the bloody grapple, the defying death-song, all were here; and when the tiger strife was over, here curled the smoke of peace.

Here, too, they worshiped; and from many a dark bosom went up a pure prayer to the Great Spirit. He had not written his laws for them on tables of stone, but he had traced them on the tables of their hearts. The poor child of nature knew not the God of revelation, but the God of the universe he acknowledged in every thing around. He beheld him in the star that sunk in beauty behind his lonely dwelling; in the sacred orb that flamed on him from his mid-day throne; in the flower that snapped in the morning breeze; in the lofty pine, that defied a thousand whirlwinds; in the timid warbler that never left its native grove; in the fearless eagle whose untired pinion was wet in clouds; in the worm that crawled at his feet; and in his own matchless form, glowing with a spark of that Light, to whose mysterious source he bent, in humble, though blind adoration.

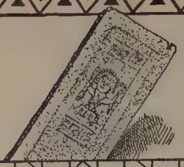
And all this has passed away. Across the ocean came a pilgrim bark, bearing the seeds of life and death. The former were sown for you; the latter sprang up in the path of the simple native. Two hundred years have changed the character of a great continent, and blotted forever from its face a whole peculiar people. Art has usurped the bowers of nature, and the children of education have been too powerful for the tribes of the ignorant. Here and there a stricken few remain; but how unlike their bold, untamed, untamable progenitors! The Indian of falcon glance and lion bearing, the theme of the touching ballad, the hero of the pathetic tale, is gone! and his degraded offspring crawl upon the soil where he walked in majesty, to remind us how miserable is man when the foot of the conqueror is on his neck.

As a race, they have withered from the land. Their arrows are broken, their springs are dried up, their cabins are in the dust. Their council-fire has long since gone out on the shore, and their war-cry is fast dying to the untrodden West. Slowly and sadly they climb the distant mountains, and read their doom in the setting sun. They are shrinking before the mighty tide which is pressing them away; they must soon hear the roar of the last wave, which will settle over them forever.

—*Charles Sprague.*



American Indian



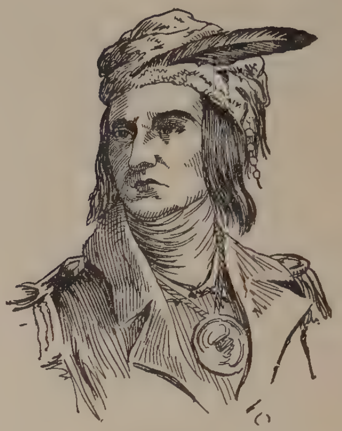
I. ORIGIN.
  1. Name—Given by Columbus.
  2. Race — Probably mixture of European and Asiatic races.

II. PERSONAL FEATURES.
  1. Hair—Long, black and straight.
  2. Beard—Scanty.
  3. Eyebrows—Heavy.
  4. Eyes—Sleepy and dull.
  5. Lips—Compressed.
  6. Cheek bones—High.
  7. Face—Broad.
  8. Hands and feet — Small and well proportioned.
  9. Stature—Varies.

III. DRESS.
  1. Skin.
  2. Bark.
  3. Woolen garment.
  4. Decorative dress.
    A. Necklaces.
    B. Earrings.
    C. Bracelets.
    D. Tattooing.
    E. Painting.

IV. FOOD.
  1. Fruits.
  2. Corn.
  3. Wild rice.
  4. Roots and seed.
  5. Maple syrup.
  6. Tobacco.
  7. Fish, game, eggs.
  8. Beans and squashes.

V. INDUSTRIES.
  1. Hunting.
  2. Fishing.
  3. Agriculture.
  4. Manufactures.

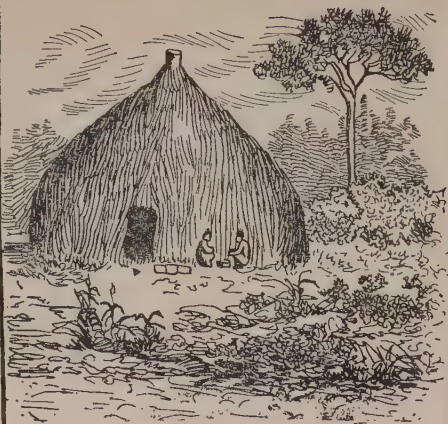


TECUMSEH.
A TYPICAL INDIAN.

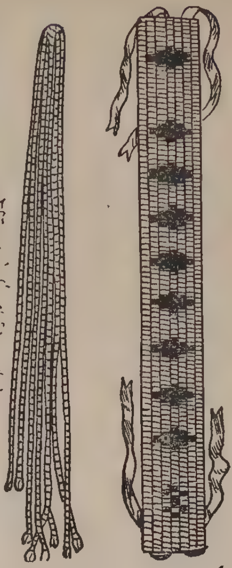
VI. RELIGION.
  1. Future life.
  2. Spirits.
  3. Virtue and bravery.
  4. Priest and medicine man.
  5. Sun worship.

VII. MANUFACTURES AND IMPLEMENTS.
  1. Bows.
  2. Arrowheads.
  3. Pottery.
  4. Snowshoes.
  5. Stone pipes.
  6. Canoes.
  7. Blankets.
  8. Baskets.
  9. Fishhooks.
  10. Knives.
  11. Leather.
  12. Numerous other articles.

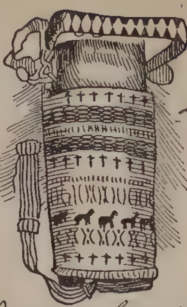
VIII. GOVERNMENT.
  1. Divided into clans with chief.
  2. Confederation of tribes.
  3. Loose administrations.
  4. Women's rights limited.
  5. Man's rights supreme.
  6. Punishments severe.
  7. Slavery uncommon.



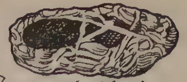
Indian Hut Built of Grass.



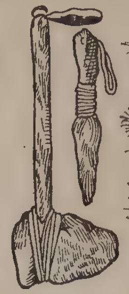
Wampum and Wampum Belt.



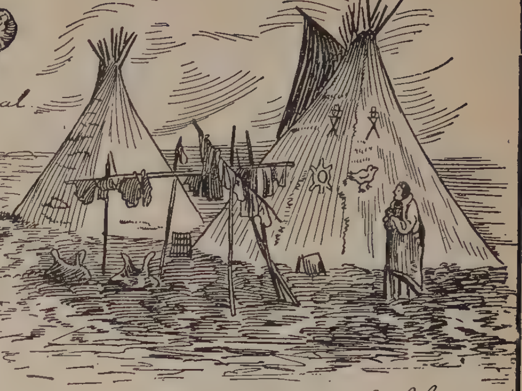
Indian Cradle.



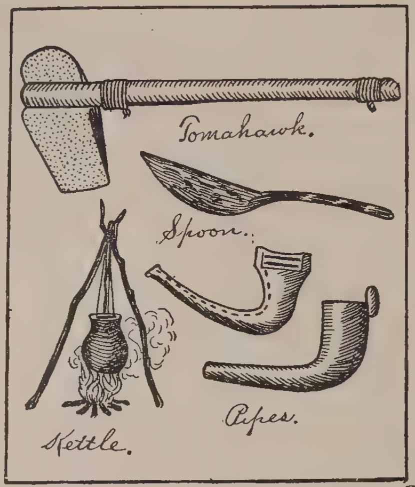
Ancient Cliff Dweller's Sandal.



Stone Implements.

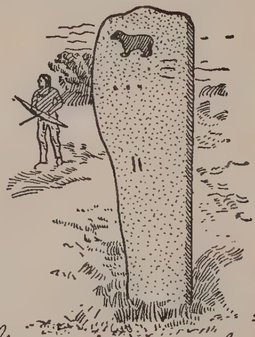


Indian Huts Built of Skins.

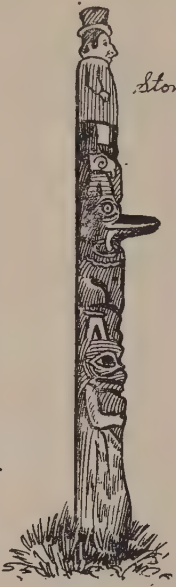


Tomahawk.
Spoon.
Pipes.
Kettle.

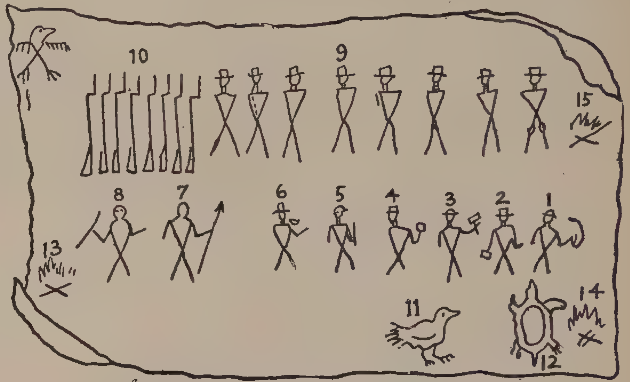
Indian Manufactures.



Gravestone with Totem of the Bear.



Totem Pole.



10
9
15
8
7
6
5
4
3
2
1
13
11
14
12

Specimen of Indian Writing.

Meaning: A captain (1), his secretary (2); one geologist (3), three attendants (4, 5, 6), two guides (7, 8), and eight soldiers (9) with guns (10) encamped here. They ate a prairie hen (11) and a turtle (12) for supper. Three camp fires (13, 14, 15) were lighted. = B. P. H.

IX. TRIBES AND RACES.

Algonquins.
Apaches.
Arapahoes.
Aztecs.
Carib.
Catawba.
Cayuga.
Cherokees.
Cheyenne.
Chickasaw.
Choctaw.
Comanches.
Cree.
Creek.
Delawares.
Eskimos.
Fox.
Huron.
Illinois.
Inca.
Iowa.
Iroquois.
Kickapoo.
Maya.
Miami.
Modocs.
Mohave.
Mohawks.
Mohicans.
Moki.
Narragansetts.
Natchez.
Navajoes.
Ojibways.
Onondaga.
Osages.
Ottawas.
Patagonian.
Pequots.
Pottawattamies.
Pueblo.
Quichua.
Sacs and Foxes.
Seminoles.
Senecas.
Shawnees.
Shoshones.
Sioux.
Toltec.
Tuscaroras.
Utahs.
Yakima.
Yumas.
Zuñi.

X. INDIAN WARS.

1. Virginia, 1622-1624.
2. Pequot, 1637.
3. King Phillip's, 1675.
4. Cherry and Wyoming Valley massacres, 1777.
5. Miami Confederation wars, in Ohio, 1790-1795.
6. Battle of Tippecanoe, 1811-1813.
7. Creek and Seminole wars, 1817.
8. Black-Hawk War, 1837.
9. Seminole War, 1835-1841.
10. Modock War, 1872.
11. Sioux War, 1876.
12. Apache War, 1884-1886.

XI. DOMESTIC ANIMALS.

1. Dog—Universally used.
2. Turkey—Central America.
3. Horses and cattle—None.
4. Sheep—None.

XII. DWELLINGS.

1. Eskimo hut—Ice, stone, or turf.
2. Wigwam—Poles and skins.
3. Mexico hut—Twigs and leaves.
4. Central America and Peru—Carved stone.
5. New Mexico—Adobe and stone.
6. Arizona—Cliff-dwellers.

XIII. BURIAL.

1. Earth—Graves with relics.
2. Platforms—In trees.
3. Cliffs—Mummies.
4. Caves.
5. Mounds.

XIV. EDUCATION AND PRESENT CONDITION.

1. Citizenship.
    A. Conditions of.
        (a) To waive all claims to public support.
        (b) Right to vote.
2. Government Policy.
    A. To encourage education.
    B. To encourage land ownership.
    C. To make them self-supporting.
3. Department of Indian Affairs.
    A. Oklahoma.
    B. Indian reservations.
4. Educational Advancement and Professions.
    A. Higher institutions of learning.
    B. Indian schools.
    C. Practice of medicine and law.
    D. Publication of newspapers.
    E. Skill in arts and trades.
    F. Scholars and educators.
5. Intermarriage with whites.
    A. Advocated by some tribes.
    B. Opposed by others.
    C. In the past.
        (a) Mostly with Spanish and French.
    D. At present.
        (a) Largely with the Negro race.
    E. Adopting customs of civilization.
        (a) Mostly by the mixed breeds.
6. Number of Indians.
    A. At time of discovery by Columbus.
        (a) East of Mississippi River, estimated 200,000.
        (b) California alone at time of gold discovery, 200,000.
    B. Present Indian population.
        (a) United States, 266,760.
        (b) Canada, 107,978.

Questions on the Indian.

Who gave the Indians their name? Why? 1382.

Was the turkey known to the Indians at the time of the discovery of America? 2940.

Were horses known to the Indians in America at the time of its discovery by Columbus? 1324.

Was timothy grass a native of America before Columbus's time? 2880.

Tell what kind of houses the Mexican Indian builds. The Eskimo Indian. See illustration, 1382.

In what countries did the Indians construct canals? Public highways?

What race of Indians had a calendar in which a year consisted of 365 days, divided into eighteen months of twenty days each? 1741.

What tribe of Indians issued books under the title of "Chilam Balam"?

What was the population of the empire of the Incas in 1532, when it was conquered by the Spanish? 1371.

What tribe of Indians embalmed their dead?

What tribe of Indians domesticated bees? 1741.

What is meant by *Indian Summer* and why so called? 1383.

What are the differences between "Luke's Summer, Old Woman's Summer, and Indian Summer"?

What Indian names were made famous by Longfellow? 1297.

When and why was Indian Territory set apart for Indian reservations? 1383.

How may an Indian become a United States citizen and have the right to hold office?

What is the difference between the Eskimos of North America and those of Siberia?

What is the policy of the government in dealing with the Indians?

Name ten important Indian wars. See outline.

Name five methods of Indian burial. See outline.

What race of Indians taught the art of reading and writing, maintained temples, and sacrificed human beings to their gods? 201.

What tribe of Indians had a priesthood and educated their young for the priesthood?

What race of Indians made sun worship their state religion? 2780.

How did the Indians make their pipes? 2220.

From what did the Indians make their arrowheads? 154.

What can you say about the stone implements of the American Indians? 2749.

What can you say about the basket work of American Indians? 242.

Was the boomerang invented by the Indians? 337.

What is the Indian population at present? See outline.

How and of what material were the houses or dwellings constructed? Outline.

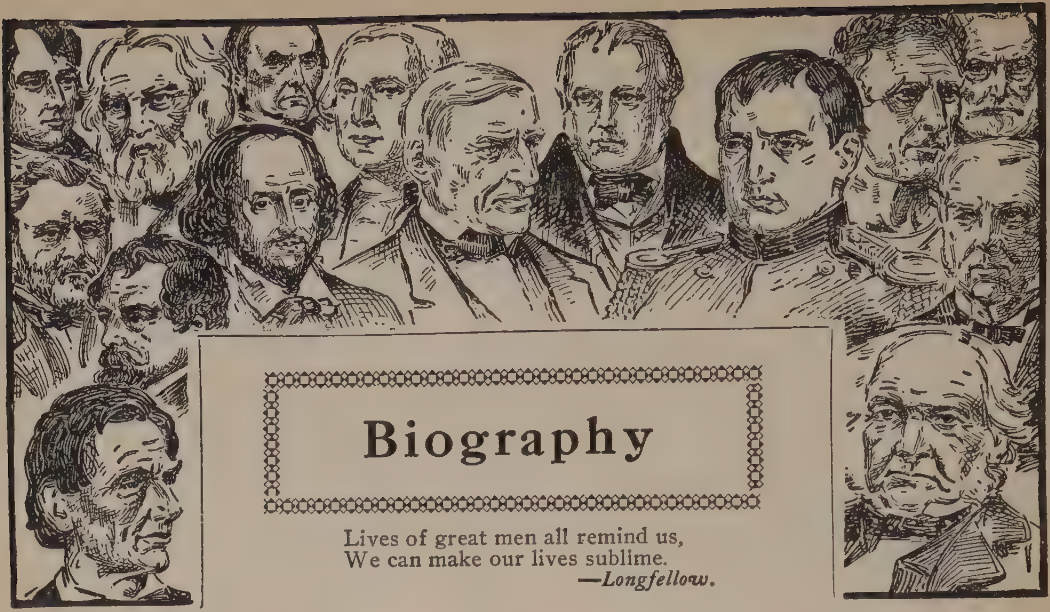
Tell for what each of these Indian chiefs were noted: Joseph Brant, King Philip, Massasoit, Powhatan, Pontiac, Black Hawk, Geronimo, Sitting Bull, Tecumseh, Osceola.

Name some of the ways in which the Indians decorated their dress and person. See outline.

Mention eight articles of food used by the Indian. See outline.

What can you say about the Indians' love for the dog? 1382.

Describe the personal features of the Indian. See outline.



Biography

Lives of great men all remind us,
We can make our lives sublime.
—*Longfellow.*

BIOGRAPHY is properly a department of literature. It includes autobiography, which is the branch of biography that is written by the subject himself.

This work of general reference contains many thousands of biographies, including subjects of early history as well as those of the most recent time. These biographies are more than mere statements of facts; they expand into the fields of criticism, literature, history, and philosophy. The treatment is such that this department at once becomes invaluable and indispensable to students.

What an influence for good a great character really is! Such a character, the entity and individuality of the possessor, shining from every window of the soul, takes a firm hold upon the lives with which it comes in contact. It is a guiding and molding influence upon others, inspiring to loftier thoughts and nobler deeds.

The biographies treat of both men and women. This work is the pioneer among reference books in publishing portraits and biographies of famous women. It may be consulted with great satisfaction along this line and answers the question, *Who is who?* The following are among the subjects of biographies contained in this work on

Celebrated Women.

Adams, Maude,
Addams, Jane,
Alcott, Louise May,
Alexandria, Queen,
Anne, Queen,
Anthony, Susan B.,
Austen, Jane,
Barton, Clara,
Beatrice Portinari,
Bernhardt, Rosine,
Bonheur, Rosa,
Bremer, Fredrika,
Brontë, Charlotte,
Browning, Elizabeth B.,
Burdette-Coutts, Angela,
Cary, Alice and Phoebe,
Catharine II.,
Catharine de Medici,
Catherwood, Mary Hartwell,
Cenci, Beatrice,
Christina, Queen,
Cleopatra,
Corday, Charlotte,
Darling, Grace,

Dido, Queen,
Eddy, Mary B. G.,
Eliot, George,
Elizabeth, Queen,
Elizabeth (Carman Sylvia),
Eugènie, Queen,
Gould, Helen,
Grey, Lady Jane,
Helen of Troy,
Héloïse (see Abélard),
Howe, Julia Ward,
Hypatia,
Isabella I.,
Jezebel, Queen,
Joan of Arc,
Josephine, Queen,
Lind, Jenny,
Maria Theresa,
Marie Antoinette,
Mary, Queen of Scots,
Nightingale, Florence,
Nordica,
Patti, Adelina,
Pocahontas,
Roland, Marie Jeanne,
Sand, George,
Sappho,
Staël-Holstein, Mme. de,
Stowe, Harriet Beecher,
Victoria, Queen,
Ward, Mary,
Washington, Mary,
Wilcox, Ella Wheeler,
Wilhelmina, Queen,
Willard, Frances E.,
Zenobia, Septimia.

Alphabetical List of Famous People.

Abolitionists—Frémont, Garrison, Phillips, Whittier, Wilberforce.

Actors—Adams, Bernhardt, Booth, Field, Garrick, Irving, Mansfield, Marlowe.

Alchemists—Agrippa, Bacon, Lavoisier, Paracelsus, Priestley.

Artists—Copley, Giotto, Ruysdael, Schnorr, Vinci, West.

Astronomers—Brahe, Halley, Herschel, Kepler, Laplace, Newton, Ptolemy.

Authors—Andersen, Bacon, Bryant, Cervantes, Chaucer, Dante, Dickens, Goethe, Homer, Irving, Luther, Milton, Schiller, Shakespeare, Tennyson, Whittier, Wilcox.

Aviators—Langley, Lilienthal, Santos-Dumont, Wright, Zeppelin.

Bible Characters—Abraham, Adam, David, Jeremiah, Jesus, Job, Joshua, Mary, Moses, Noah, Paul, Solomon.

Botanists—Burbank, Engelmann, Gray, Humboldt, Huxley, Linnaeus, Tyndall.

Cartoonists—Cruickshank, McCutcheon, Nast, Opper.

Chemists—Achard, Cavendish, Curie, Dalton, Faraday, Pasteur, Priestley.

Colonists—Balboa, Champlain, De Soto, Drake, Hudson, Raleigh.

Confederate Statesmen—Benjamin, Breckenridge, Davis, Stephens, Yancey.

Discoverers—Columbus, Cook, Cortez, Drake, Emin Pasha, Livingstone, Magellan, Nansen, Peary, Stanley.

Divines—Abbott, Beecher, Gunsaulus, Hillis, Moody, Parker.

Dramatists—Aeschylus, Björnson, Dumas, Ibsen, Jonson, Lessing, Schiller, Sudermann.

Electricians—Ampère, Bell, Edison, Marconi, Ohm, Röentgen, Siemens.

Emperors—Caesar, Charlemagne, Francis Joseph, Maximilian I., Nicholas II., William I.

Engineers—Drummond, Eads, Eiffel, Ericsson, Lesseps, Roebling, Waring.

English Statesmen—Balfour, Burke, Chamberlain, Gladstone, Pitt, Salisbury.

Essayists—Addison, Carlyle, Emerson, Lessing, Locke, Voltaire.

Fathers of the Church—Athanasius, Boniface, Gregory, Irenaeus, Origen, Polycarp.

Federal Statesmen—Blaine, Douglas, Lincoln, Seward, Sumner.

Financiers—Carnegie, Morgan, Sage, Rockefeller, Rothschild, Vanderbilt.

Historians—Bancroft, Bryce, Eggleston, Gibbon, Guizot, Herodotus, von Holst, Hume, Macaulay, Parkman, Plutarch.

Humorists—Clemens, Harte, Nye, Shaw, Stockton, Ward.

Inventors—Bell, Davy, Edison, McCormick, Marconi, Maxim, Mergenthaler, Siemens, Tesla, Whitney.

Journalists—Bennett, Dana, Franklin, Greeley, Hearst, Medill, Pulitzer, Watterson, Young.

Kings—Alexander, Charles V., Christian IX., Edward VII., George III., Henry VIII.

Lawyers—Blackstone, Choate, Confucius, Evarts, Lycurgus, Moses, Solon, Webster.

Librarians—Dewey, Poole, Spofford.

Logicians—Aristotle, Hegel, Kant, Leibnitz, Mill, Zeno.

Mathematicians—Archimedes, Gunter, Legendre, Newton, Pythagoras, Thomson.

Merchants—Astor, East India Companies, Girard, Hudson's Bay Company, Field, Law, Wanamaker.

Missionaries—Elliot, Jesuits, Livingstone, Moffat, Xavier.

Musicians—Abt, Beethoven, Bull, Lind, Liszt, Mendelssohn, Mozart, Paderewski, Strauss, Wagner.

Naturalists—Agassiz, Audubon, Cuvier, Darwin, Haeckel.

Naval Commanders—Dewey, Farragut, Jones, Nelson, Themistocles, Togo, Tromp.

Novelists—Andersen, Balzac, Björnson, Boccaccio, Cooper, Daudet, Dumas, Ebers, Freytag, Howells, Stevenson, Tolstoi.

Orators—Antiphon, Bryan, Burke, Cicero, Demosthenes, Erskine, Henry, Ingersoll, Phillips, Webster.

Painters—Angelo, Burne-Jones, Correggio, Menzel, Murillo, Raphael, Rembrandt, Rubens, Sargent, Titian, Whistler.

Patriots—Bozzaris, Bruce, Egmont, Joan of Arc, Kosciusko, Philopoemen, Revere, Tell, Winkelried.

Philanthropists—Childs, Cooper, Durant, Girard, Hirsch, Peabody.

Philosophers—Anaxagoras, Edwards, Fichte, Galileo, Leibnitz, Locke, Ptolemy, Schelling, Spinoza, Thales, Zeno.

Physicians—Hahnemann, Harvey, Koch, Lorenz, Pasteur, Senn, Virchow.

Physicists—Archimedes, Fahrenheit, Helmholtz, Tyndall, Torricelli.

Poets—Browning, Bryant, Burns, Byron, Chaucer, Dryden, Euripides, Goldsmith, Heine, Longfellow, Lowell, Uhland, Whittier, Wordsworth.

Political Economists—Bagehot, Cobden, Ely, Fawcett, Franklin, Mill.

Preachers—Chrysostom, Kempis, Moody, Wesley, Wycliffe, Xavier.

Presidents—(See articles under their names).

Printers—Caxton, Coster, Elzevir, Faust, Gutenberg.

Psychologists—Aristotle, Berkeley, Cousin, Hegel, Herbart, Hume.

Queens—Catharine, Cleopatra, Elizabeth, Irene, Isabella, Maria Theresa, Victoria.

Reformers—Anthony, Blackwell, Bloomer, Mott, Stanton.

Scientists—Agassiz, Buffon, Bunsen, Cuvier, Dalton, Liebig.

Sculptors—Bartholdi, Donatello, Dürer, Greenough, Hosmer, Houdon, Phidias, Powers, Raphael, Rauch, Saint Gaudens, Thompson, Thorwaldsen, Vinci.

Singers—De Reszke, Lind, Nordica, Patti, Sankey, Sembrich, Sontag.

Socialists—Debs, Fourier, Marx, Owen.

Social Reformers—Adams, Adler, Debs, Gerry.

Soldiers—Alexander, Blücher, Caesar, Cromwell, Frederick the Great, Grant, Hannibal, Lee, Washington, Wellington.

Statesmen—Bismarck, Blaine, Bolingbroke, Davis, Everett, Gladstone, Laurier, Lincoln, Monroe, Roosevelt.

Suffragists—Anthony, Bloomer, Lockwood, Mott, Stanton.

Teachers—Ascham, Eliot, Erasmus, Froebel, Mann, Pestalozzi, Quintilian.

Temperance Workers—Bidwell, Dow, Fish, Gough, Saint John, Willard.

Theologians—Beecher, Campbell, Huss, Luther, Walther, Zwingli.

Warriors—Alfred the Great, Charlemagne, Gustavus Adolphus, Napoleon, Timur, Washington, Wallenstein, Xeniphon.

Writers, American—Cooper, Emerson, Holmes, Lowell, Motley, Roosevelt, Thoreau.

Writers, Canadian—Bourinot, Bryce, Campbell, Carman, Drummond, Galt, Parker, Smith.

Writers, English—Ascham, Bunyan, Carlyle, Coleridge, Dryden, Gray, Ruskin.

Zoölogists—Agassiz, Cuvier, Dana, Darwin, Haeckel, Linnaeus, Spencer, Weismann.

Questions on Biography.

What is biography? Distinguish between biography and autobiography. 296.

What benefits are derived from the study of great lives?

Name six prominent American statesmen and six Canadian statesmen.

Who reigned longest of the English sovereigns? 922.

To whom do the following titles belong: "The Pen of the Revolution," "The Expounder of the Constitution," "The Father of His Country," "The Pacificator," and "The Hero of Quebeck"

Give a list of noted artists and their best paintings.

Mention some of the renowned poets of the present age.

Write a brief sketch of the life of Shakespeare.

What prominence did G. M. Adams, Alexander McKenzie, Goldwin Smith, and Joseph Howe hold in Canadian literature?

State some notable feature connected with the life of Pasteur, Marconi, Sampson, Santa Anna, Aali Pasha, Montcalm, Gladstone, Frances E. Willard, Milton, and Socrates.

Contrast the life of Queen Elizabeth with that of Mary, Queen of Scots.

Death of Schiller.

'Tis said, when Schiller's death drew nigh,
The wish possessed his mighty mind,
To wander forth wherever lie
The homes and haunts of humankind.

Then strayed the poet, in his dreams,
By Rome and Egypt's ancient graves;
Went up the New World's forest streams,
Stood in the Hindoo's temple-caves.

Walked with the Pawnee, fierce and stark,
The bearded Tartar, 'midst his herds,
The peering Chinese, and the dark
False Malay uttering gentle words.

How could he rest? even then he trod
The threshold of the world unknown;
Already, from the seat of God,
A ray upon his garments shone;—

Shone and awoke that strong desire
For love and knowledge reached not here,
Till death set free his soul of fire,
To plunge into its fitting sphere.

Then—who shall tell how deep, how bright,
The abyss of glory opened round?
How thought and feeling flowed like light,
Through ranks of being without bound?

—*Bryant.*

Champlain.

I. EARLY LIFE.

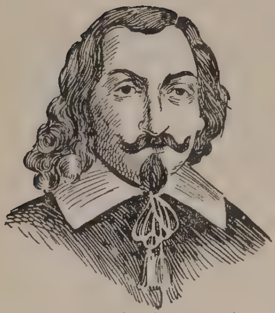
1. Born in Brouage, France, in 1567, of French Catholic parents.
2. Son of a ship captain.
3. Carefully trained in principles of navigation and cartography.
4. Entered army when young and became a quartermaster of cavalry.
5. Uncle was pilot general of Spanish fleets.

II. PUBLIC CAREER.

1595 —Distinguished himself in war against Spain, attracting the attention of Henry IV.

1599 —Took command of Saint Julien and sailed to West Indies, remaining two years and a half and then returning by way of the Isthmus of Panama.

Wrote records of voyage, made views and charts, and proposed plan for channeling the Isthmus.



SAMUEL DE CHAMPLAIN.

1603-04—First two voyages to Canada.
Sailed up Saint Lawrence.
Explored and mapped coast as far as Cape Cod.
Discovered lakes Champlain, Huron, and Erie.

1608 —Founded Quebec.
Erected houses.
Sowed grain.
Developed fur trade.
Joined Hurons and Algonquins.

1609 —Fought against Iroquois.

1610 —Returned to France and married Mademoiselle Hélène Boulè, a Protestant girl, who became a Ursuline nun after his death.

1611 —Planted settlement at Montreal.

1612-29—Governor cf Canada.
Defeated by Britains and carried captive to England.

1632 —Restored to liberty.

1633 —Returned to Canada.

1635 —Died in Quebec on Christmas.

III. AIMS.

1. Christianize the natives.
2. Explore new lands.
3. Discover shorter route to China.

IV. CHARACTERISTICS.

1. Bold and fearless.
2. Farseeing and resourceful.
3. Full of tact in his dealings.
4. A born commander.
5. Of adventurous spirit.
6. "His purse was small, his merit great."
7. Known as the "Father of New France."

Test Questions on Champlain.

Of what nationality was Champlain? 530.

Tell all you can about his early life.

How did he distinguish himself at an early age?

Of whom did he receive a commission to make settlements in America?

How long did he remain in the West Indies?

Of what city of Canada is he the founder? How did he assist the settlers?

With what success did he meet in Christianizing the Indians?

Describe his first two expeditions to Canada.

By what means is his name perpetuated?

When and whom did he marry? What did his widow become after his death?

What exalted position did he hold in Canada?

Why was he called the "Father of New France"?

For what reason was he taken captive to England? Was he ever liberated?

Tell which of his characteristics are worthy of patterning.

Where and at what age did he die?

Columbus.

How in God's name did Columbus get over
  Is a pure wonder to me, I protest,
Cabot, and Raleigh too, that well-read rover,
  Frobisher, Champlain, Drake, and the rest.
    Bad enough all the same,
    For them that after came,
    But, in great Heaven's name,
    How *he* should ever think
    That on the other brink
Of this wild waste *terra firma* should be,
Is a pure wonder, I must say, to me.

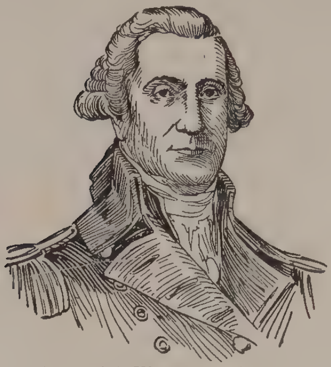
How a man ever should hope to get thither,
  E'en if he knew that there was another side;
But to suppose he should come any whither,
  Sailing straight on into chaos untried,
    In spite of the motion
    Across the whole ocean,
    To stick to the notion
    That in some nook or bend
    Of a sea without end
He should find North and South America,
Was a pure madness, indeed I must say, to me.

What if wise men had, as far back as Ptolemy,
  Judged that the earth like an orange was round,
None of them ever said, "Come along, follow me,
  Sail to the West, and the East will be found."
    Many a day before
    Ever they'd come ashore,
    From the *San Salvador*,
    Sadder and wiser men
    They'd have turned back again;
And that *he* did not, but did cross the sea,
Is a pure wonder, I must say, to me.

—*Arthur Hugh Clough.*

Washington.

Birthday, Feb. 22, 1732.
Death, Dec. 14, 1799.
Parents.
  Augustine Washington.
  Mary Ball (2nd wife).



GEORGE WASHINGTON.

Education.
  Elementary subjects.
  Mathematics.
Profession.
  Surveyor.
  Adjutant general (1751).
  Lieutenant colonel (1754).
  Aid-de-camp to Braddock (1755).
Revolution.
  Commander in chief.
President.
  Two terms (1789-1797).
  Events.
    1. Admission of Ky., Vt., Tenn.
    2. Federal assumption of debts.
    3. Indian wars in Northwest Territory.
    4. Founding of Washington.
    5. Establishment of first U. S. Bank (1791).
    6. Whisky Insurrection (1794).
    7. National mint established in Philadelphia.
    8. Adjustment of important treaties with other countries.
    9. Jay's Treaty with England ratified (1796).
    10. Naturalization changed to five years (1796).
Married.
  Martha Custis (widow), 1759.
  Childless.
  Grandchildren of widow (adopted two).
Residence.
  Mount Vernon—
    Planter 16 years.
    Owned 125 slaves.
    Magistrate.
    Member of Legislature.
    First and Second Continental Congresses.
Character and appearance.
  Dignified.
  Thoughtful.
  Studious.
  "Towered above party strife."
  "First in war, first in peace, first in the hearts of his countrymen."
Burial.
  Mount Vernon.

Where may the wearied eye repose
  When gazing on the great,
Where neither guilty glory glows
  Nor despicable state?
Yes,—one, the first, the last, the best,
  The Cincinnatus of the West,
Whom envy dared not hate,
  Bequeathed the name of Washington
  To make men blush there was but one.
—*Lord Byron.*

Questions on Washington.

Who was Washington's grandfather and from what country was he a native?

When did Washington's father die? How old was George at the time?

Who was the mother of George Washington?

Who was the wife of George Washington? When was she born?

Why is Washington and Lee University so named?

What can you say about Washington's memorial arch in New York City?

Where is Washington's Elm located and for what noted?

When did the popular movement for a national memorial for Washington begin?

What is the height of the Washington monument at Washington, D. C.? When was the cornerstone laid? When was it dedicated? What did it cost? Who selected the site of the Washington monument?

How many slaves did Washington keep? When were they emancipated and how?

Did Washington have any children? How many children did he adopt?

To what lodges did he belong?

What were the dying words of Washington? Method Book, 288.

What did Washington say on declining military escort on the occasion of his inauguration in 1789? M. B., 286.

What does Washington say about bad company and self-esteem? M. B., 289.

Give a quotation from Washington on the justice of his country. M. B., 298.

Name five important events that occurred during Washington's administration.

What can you say about his dignity and self-control?

In what battle did Washington have two horses shot under him?

In what year did Washington issue his farewell address? Describe his personal appearance.

What eulogy did Peter Cooper pass upon Lincoln and Washington? M. B., 286.

What can you say about the domestic life of Washington?

What is said of Mrs. Washington in regard to caring for sick soldiers?

When did Mrs. Washington die? Did she like official life? What did she do with Washington's love letters? What can you say about her dress?

From whom did Washington receive the estate at Mount Vernon? What was the date of his marriage?

What can you say of Washington as a statesman and a lawyer?

The Twenty-Second of February.

Pale is the February sky,
And brief the mid-day's sunny hours;
The wind-swept forest seems to sigh
For the sweet time of leaves and flowers.

Yet has no month a prouder day,
Not even when the summer broods
O'er meadows in their fresh array,
Or Autumn tints the glowing woods.

For this chill season now again
Brings, in its annual round, the morn
When, greatest of the sons of men,
Our glorious Washington was born!

Amid the wreck of thrones shall live,
Unmarred, undimmed, our hero's fame;
And years succeeding years shall give
Increase of honors to his name.

—*Bryant.*

Napoleon.

BIRTH.

1. Born at Ajaccio, island of Corsica, Aug. 15, 1769; died at Saint Helena, May 5, 1821.

PARENTS.

1. Father, Charles Bonaparte; mother, Letizia Ramolino.

EDUCATION.

1. Military school at Brienne, as a pensioner to the king, five years.
2. Military school at Paris, received commission, lieutenant of artillery, in 1785.

MARRIAGE.

1. March 9, 1796, married Josephine Beauharnais; no children.
2. April 2, 1810, divorced Josephine; married Marie Louise of Austria; one son born March 20, 1811, known as Napoleon II.

NAPOLEON BONAPARTE.

PUBLIC LIFE.

1. Stationed at Valence during French Revolution; attempted to conquer the Corsican cities for France.
2. Lieutenant colonel of artillery in 1793.
3. Captured Toulon from British; made brigadier general of artillery in 1784.
4. In 1785, given command of army of interior.
    a. French forces, 40,000; Austrians and Sardinians, 75,000.
    b. Captured the Appenines by defeating Austrians at Montenotte.
    c. Took all Northern Italy after Battle of Lodi, May 10, 1796; required the Pope to cede part of his dominion to France.
    d. Defeated Austrians at Bassano, Roveredo, Rivoli, and other points, compelling Austria to make peace.
    e. Peace treaties with Modena, Parma, and Naples; treaty with Austria gave Lombardy to Netherlands and Ionia to France.
5. Directory sent Napoleon to Africa in 1798.
    a. Reduced Malta en route; July 1st, landed at Alexandria.
    b. July 4th, reduced Alexandria; captured Cairo July 24th, winning the Battle of the Pyramids.
    c. Overran all Egypt and most of Palestine.
    d. Defeated at Acre and fleet was destroyed in the Bay of Aboukir by Nelson, July 25th.
    e. Nearly annihilated the Turkish army at Aboukir.
    f. Left Egyptian army with General Kléber and returned to France to help restore order and confidence.
6. Abolished the Directory Nov. 9, 1799.
7. Caused the adoption of a new constitution.
    a. This provided for three consuls.
        A. First Consul, Napoleon.
        B. Second Consul, Cambaceres.
        C. Third Consul, Lebrun.
8. Napoleon and Josephine occupied the palace of the kings in the Tuileries.
9. Constructed highways and canals; reorganized the army; invented the metric system.
10. In 1800 went by way of the Great Saint Bernard pass and defeated the Austrians at Marengo.
11. Won the Battle of Hohenlinden.

12. By the Peace of Luneville, acquired all Italy.
13. Subsequent treaties were made with Portugal, Spain, Bavaria, Naples, Turkey, and Russia.
14. In 1802 forced Great Britain into the Treaty of Amiens.
15. He reformed local government.
    a. Established schools.
    b. Revised the code of laws.
    c. Founded the Bank of France.
    d. Established universities.
    e. Defined powers of the church.
    f. Encouraged industrial arts and sciences.
16. In 1802, made Consul for life; in May, 1804, crowned Emperor; Josephine made Empress of France.
17. May 26, 1805, he was crowned King of Italy; his stepson, Eugène Beauharnais, became his viceroy.
18. In 1805 Napoleon invaded Germany, defeated a large army at Ulm, captured Vienna, and, Dec. 2d, won the Battle of Austerlitz.
    a. His brother Joseph was made King of Naples; Louis, King of Holland.
19. Defeated Prussians and Russians at Jena and captured Berlin.
    a. Made his brother Jérôme King of Westphalia.
20. In June, 1807, defeated the Russians at Friedland.
21. Formed compact with Emperor Alexander I.
    a. By which Russia took Finland and part of Prussian Poland.
    b. King of Prussia kept one-half of his former dominions.
22. Napoleon issued his "Milan Decree," closing ports of Europe.
23. English army defeated him in Portugal.
24. In 1807 he defeated the Portuguese and English and made his brother Joseph King of Spain. His brother-in-law, Murat, became King of Naples.
25. Austria declared war against Napoleon in 1809.
26. Napoleon was defeated at Aspern and Esslingen.
27. July 6, crushed opposing forces completely at Wagram. Francis Joseph ceded France more territory.
28. Height of his power in 1810 and 1811.
29. Married Marie Louise of Austria in 1810; son born in 1811.
30. Napoleon declared war against Russia in 1812.
    a. Defeated Russians at Borodino; reached Moscow.
    b. Inglorious retreat.
31. Prussia, Spain, Russia, Great Britain and Sweden formed an alliance against him; Napoleon defeated them at Lützen May 2, 1813.
    a. Again defeated the united armies at Bautzen and Dresden.
    b. Napoleon withdrew to Leipsic and was defeated in the "Battle of Nations," Oct. 16, 18 and 19.
32. In 1814, defeated Blücher in four engagements.
33. March 30, 1814, allied armies captured Paris.

a. April 5, 1814, abdicated at Fontainebleau.
  A. Retained title of Emperor.
  B. Sovereignty of Isle of Elba.
  C. Louis XVIII. restored to throne of France.

34. After ten months at Elba, Napoleon returned to Frejus. Louis XVIII. fled.
35. Again a powerful army surrounded him.
36. The allied armies began a march at once upon France.
  a. He defeated Blücher at Ligny, June 16.
  b. Lost the Battle of Waterloo.
    A. Surrendered to Captain Maitland of British man-of-war.
    B. Kept a prisoner for life at Saint Helena, under charge of Sir Hudson Lowe.
37. Last words, "Head of the army."

BURIED.

1. On the Island of Saint Helena for twenty years.
2. Remains removed to France and placed in a magnificent tomb in the Hotel des Invalides, Dec. 15, 1840.

Questions on Napoleon.

Why did Napoleon divorce Josephine and marry Marie Louise? 1895.

Who invented the metric system? See outline.

What is known as the "Battle of Nations"? 1896.

Who issued the famous "Milan Decree"? See outline.

What defeated Napoleon on his Russian campaign?

From what you know of Napoleon, was his life a success?

Nearly one hundred years ago Napoleon said, "The day will come when Europe, and especially England, will lament that they did not let me conquer those northern barbarians" (speaking of Russia). Has England had cause recently to remember it?

Napoleon Bonaparte.

He is fallen! We may now pause before that splendid prodigy, which towered among us like some ancient ruin, whose frown terrified the glance its magnificence attracted. Grand, gloomy, and peculiar, he sat upon the throne, a sceptred hermit, wrapt in the solitude of his own originality. A mind, bold, independent, and decisive,—a will despotic in its dictates—an energy that distanced expedition, and a conscience pliable to every touch of interest, marked the outline of this extraordinary character—the most extraordinary, perhaps, that, in the annals of this world, ever rose, or reigned, or fell.

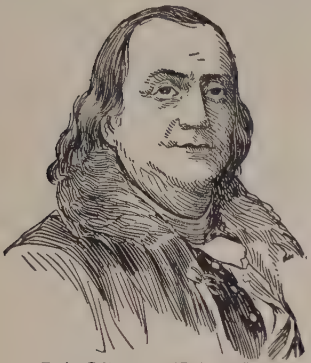
Flung into life in the midst of a revolution that quickened every energy of a people who acknowledge no superior, he commenced his course, a stranger by birth, and a scholar by charity! With no friend but his sword, and no fortune but his talents, he rushed into the lists where rank and wealth and genius had arrayed themselves, and competition fled from him as from the glance of destiny. He knew no motive but interest—he acknowledged no criterion but success—he worshipped no God but ambition, and, with an Eastern devotion, he knelt at the shrine of his idolatry.

—*Charles Phillips.*

Franklin.

BIRTH.

1. Boston, Mass., Jan. 17, 1706; died in Philadelphia, Pa., April 19, 1790.
2. The fifteenth of seventeen children.



BENJAMIN FRANKLIN.

PARENTS.

1. Emigrated to America in 1685; father's name, Josiah Franklin; tallow chandler and soap boiler.

EDUCATION.

1. Early education limited; apprenticed as printer to his brother; went to Philadelphia when he was seventeen, landed with $1.25; when 21 had saved enough to buy the *"Pennsylvania Gazette"*; loved books and was a versatile reader; granted academic degrees by Oxford and Edinborough; elected member of Royal Society of England.

MARRIAGE.

1. To Deborah Reed, when 22 years of age.

PUBLIC LIFE.

1. Deputy general of British colonies in 1753.
2. Member of Albany convention (1754).
3. Agent of Pennsylvania in England, in 1757-62; again from 1764 until the Revolution.
4. Presented the first petition of the American Congress to King of England.
5. Elected a member of Congress on return to America.
6. Favored the Declaration of Independence.
7. Commissioner plenipotentiary to France in 1776; obtained large loans and other concessions; concluded an alliance with France; later made a treaty with England; still later a commercial treaty with Prussia.
8. Chosen President of Pennsylvania in 1785.
9. Delegate to the Federal Convention, in 1787, making the Constitution.

INVENTIONS.

1. Regarding the theory of positive and negative electricity.
2. Electricity and lightning are identical.
3. Lightning rod, or conductor.

WRITINGS.

1. *Poor Richard's Almanac*—Printed for 25 years (1732-57).
2. Papers on scientific subjects, political economy, and antislavery.
3. Autobiography incomplete at death

CHARACTER.

1. Noble, frugal, honest.

BURIAL.

1. With his wife in the yard of Christ Church, Fifth and Arch streets, Philadelphia, Pa.

Questions on Franklin.

Is the epitaph Franklin wrote engraved on his monument? 1056.

Is the plain marble slab erect or horizontal on Franklin's grave?

How did Franklin prove electricity and lightning to be identical?

Why do children like to read anything Benjamin Franklin wrote? Which of his writings is read extensively in schools? 1056.

Whom did Franklin marry? When?

Write two hundred words on the subject, "The Service of Benjamin Franklin to His Country."

The Way to Wealth.

From Poor Richard's Almanac.

I have read that nothing gives an author so great pleasure as to find his words respectfully quoted by others. Judge, then, how much I must have been gratified by an accident I am going to relate to you. I stopped my horse lately where a great number of people were collected at an auction of merchants' goods. The hour of the sale not being come, they were conversing on the badness of the times; and one of the company called to a plain, clean old man with white locks: "Pray, Father Abraham, what think you of the times? Will not these heavy taxes quite ruin the country? How shall we ever be able to pay them? What would you advise us to do?" Father Abraham stood up and replied: "If you would have my advice, I will give it you in short; for *A word to the wise is enough,* as Poor Richard says." They joined in desiring him to speak his mind, and gathering round him he proceeded as follows:

"Friends," said he, "the taxes are indeed very heavy, and if those laid on by the government were the only ones we had to pay, we might more easily discharge them, but we have many others and much more grievous to some of us. We are taxed twice as much by our idleness, three times as much by our pride, and four times as much by our folly, and from these taxes the commissioners cannot ease or deliver us by allowing an abatement. However, let us hearken to good advice, and something may be done for us; *God helps them that help themselves,* as Poor Richard says.

"It would be thought a hard government that should tax its people one-tenth part of their time, to be employed in its service, but idleness taxes many of us much more; sloth, by bringing on diseases, absolutely shortens life. *Sloth, like rust, consumes faster than labor wears, while the used key is always bright,* as Poor Richard says. *But dost thou love life, then do not squander time, for that is the stuff life is made of,* as Poor Richard says. How much more than is necessary do we spend in sleep, forgetting that *The sleeping fox catches no poultry,* and that *There will be sleeping enough in the grave,* as Poor Richard says.

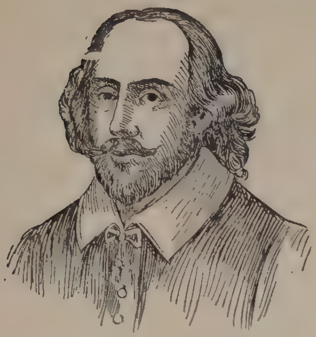
"*If time be of all things the most precious, wasting time must be,* as Poor Richard says, *the greatest prodigality,* since, as he elsewhere tells us, *Lost time is never found again, and what we call time enough always proves little enough.* Let us then up and be doing, and doing to the purpose; so by diligence shall we do more with less perplexity. *Sloth makes all things difficult, but industry all things easy;* and *He that riseth late must trot all day, and shall scarce overtake his business at night;* while *Laziness travels so slowly that Poverty soon overtakes him. Drive thy business, let not that drive thee;* and *Early to bed and early to rise, makes a man healthy, wealthy, and wise,* as Poor Richard says.

"So what signifies wishing and hoping for better times; we may make these times better if we bestir ourselves. *Industry need not wish, and he that lives upon hopes will die fasting. There are no gains without pains; then help hands, for I have no lands;* or if I have they are smartly taxed. *He that hath a trade hath an estate, and he that hath a calling hath an office of profit and honor,* as Poor Richard says; but then the trade must be worked at and the calling followed, or neither the estate nor the office will enable us to pay our taxes. If we are industrious we shall never starve, for *At the working man's house hunger looks in but dares not enter.* Nor will the bailiff nor the constable enter, for *Industry pays debts, while despair increaseth them.* What though you have found no treasure, nor has any rich relation left you a legacy, *Diligence is the mother of good luck, and God gives all things to industry. Then plough deep while sluggards sleep, and you shall have corn to sell and to keep.* Work while it is called to-day, for you know not how much you may be hindered to-morrow. *One to-day is worth two to-morrows,* as Poor Richard says."

Shakespeare.

Birth.

1. Born in Stratford-on-Avon, England, April 23, 1564; died April 23, 1616.



WILLIAM SHAKESPEARE.

Parents.

1. John Shakespeare and Mary Arden. Family consisted of four sons and four daughters. William was the third child.
2. His parents had very little education; not financially well to do.

Education.

1. Attended grammar school at Stratford; his father failed financially and William was taken from school and apprenticed to a butcher; worked as a lawyer's clerk a short time.

Marriage.

1. At the age of eighteen, Anne Hathaway, who was twenty-six years old.
    - a. One son and two daughters were born: Susanna, Judith, and Hamnet.
2. In 1586 took up residence in London; engaged as player and dramatist; rose rapidly.
3. More eminent as a playwright than as an actor.

Character.

1. Henry Chettle's apology for a criticism: "I am as sorry as if the originall fault beene my fault, because myself have seene his demeanor no less civill than his exclent in the quality he professes: besides, divers of worship have reported his uprightness of dealing which argues his honesty, and his felicitous grace in writing that approves his art."

Writings.

1. First Class.
    - a. Historical.
        - A. *Henry VI., Richard II., Richard III., King John, Henry IV., Henry V.,* and *Henry VIII.*
2. Second Class.
    - a. Semi-historical.
        - A. *Titus Andronicus, Hamlet, King Lear, Macbeth, Julius Caesar, Antony and Cleopatra, Coriolanus,* and *Cymbeline.*
3. Third Class.
    - a. Fictitious.
        - A. *Love's Labor Lost, Comedy of Errors, Two Gentlemen of Verona, A Midsummer Night's Dream, The Merchant of Venice, Romeo and Juliet, Much Ado About Nothing, Twelfth Night, As You Like It, Taming of the Shrew, Pericles, Merry Wives of Windsor, Measure for Measure, All's Well That Ends Well, Timon of Athens, Troilus and Cressida, Othello, Winter's Tale,* and *The Tempest.*

Friends and Contemporaries.

1. Queen Elizabeth, James I., Drayton, Ben Jonson, Francis Bacon.

Burial.

1. In chancel of Stratford church.

2. Inscription on tombstone:

Good friend for Jesus sake forbeare
To digg the dust enclosed heare:
Bleste be the man that spares these stones,
And curst be he who moves my bones.

This prevents a removal of the remains to Westminster Abbey.

Questions on Shakespeare.

How did Shakespeare happen to go to London to live? 2603.
What story is told of how he contracted the fever of which he died?
Was he good looking? Large or small?
How did Shakespeare get the style and title *Gentleman?*
What was the effect of his *Rape of Lucrece?*
What German writer is often compared to Shakespeare? 1159.
Mention ten English contemporary writers of Shakespeare. 919.
Speak of his position or rank as a dramatist. 826.

The Shakespeare Ode.

Then Shakespeare rose!
Across the trembling strings
His daring hand he flings,
And lo! a new creation glows!
There, clustering round, submissive to his will,
Fate's vassal train his high commands fulfill:—

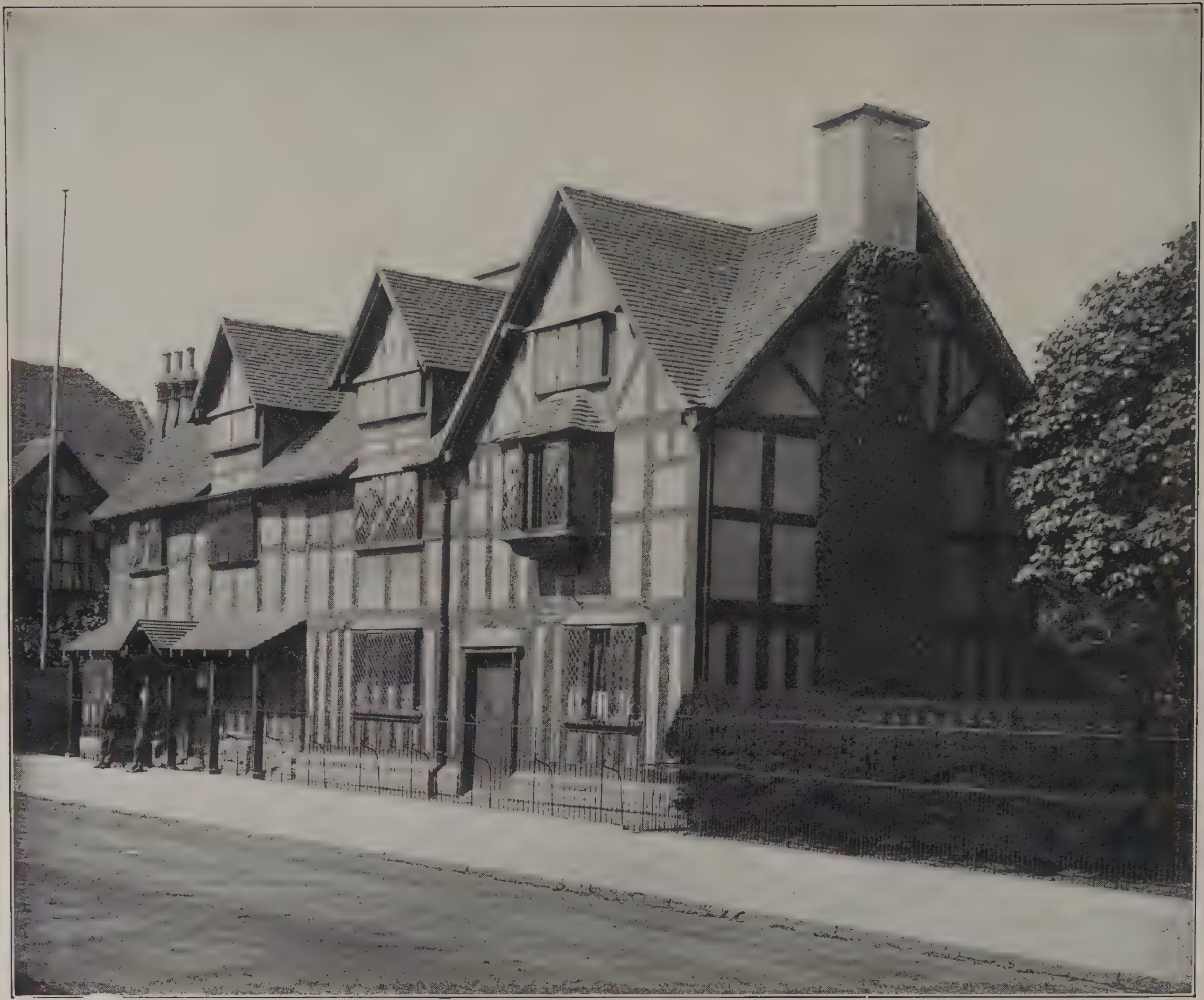
Madness, with his frightful scream,
Vengeance, leaning on his lance,
Avarice, with his blade and beam,
Hatred, blasting with a glance;
Remorse that weeps, and Rage that roars,
And Jealousy that dotes, but dooms, and murders yet adores;
Mirth, his face with sunbeams lit,
Waking Laughter's merry swell,
Arm in arm with fresh-eyed Wit,
That waves his tingling lash, while Folly shakes his bell.

Despair that haunts the gurgling stream,
Kissed by the virgin moon's cold beam,
Where some lost maid wild chaplets wreathes
And, swan-like, there her own dirge breathes,
Then broken-hearted sinks to rest,
Beneath the bubbling wave that shrouds her maniac breast.

Young Love with eye of tender gloom,
Now drooping o'er the hallowed tomb
Where his plighted victims lie,
Where they met, but met to die,
And now, when crimson buds are sleeping
Through the dewy arbor peeping,
Where Beauty's child, the frowning world forgot,
To youth's devoted tale is listening,
Rapture on her dark lash glistening,
While fairies leave their cowslip cells, and guard the happy spot.

Thus rise the phantom throng,
Obedient to their Master's song,
And lead in willing chains the wondering soul along.

—*Charles Sprague.*



THE HOUSE WHERE SHAKESPEARE WAS BORN.

Fine Arts

THE fine arts, as understood at present, include the departments of art which primarily employ the imagination and taste in the production of what is beautiful. Architecture, painting, and sculpture are distinctly fine arts, but the term is often extended to include engraving, music, and poetry.

This work of general reference contains many hundreds of articles relative to these topics. The treatment is according to the most approved methods of teaching, taking up the general subject from these standpoints—the artistic, biographical and historical. This treatment commends itself to the student because it furnishes information from different points of view. The *artistic* furnishes knowledge of a particular art; the *biographical* deals with the life of the individual artist; and the *historical* places the products within a certain country or a particular era.

A study of the fine arts has a refining influence. It brings the mind in contact with the most beautiful products of man. As an environment to the student and the scholar, no other branch of knowledge so completely comes in touch with the higher nature. In this sense it is far-reaching in stimulating the imagination and furnishing material for continuity of thought.

Architecture.

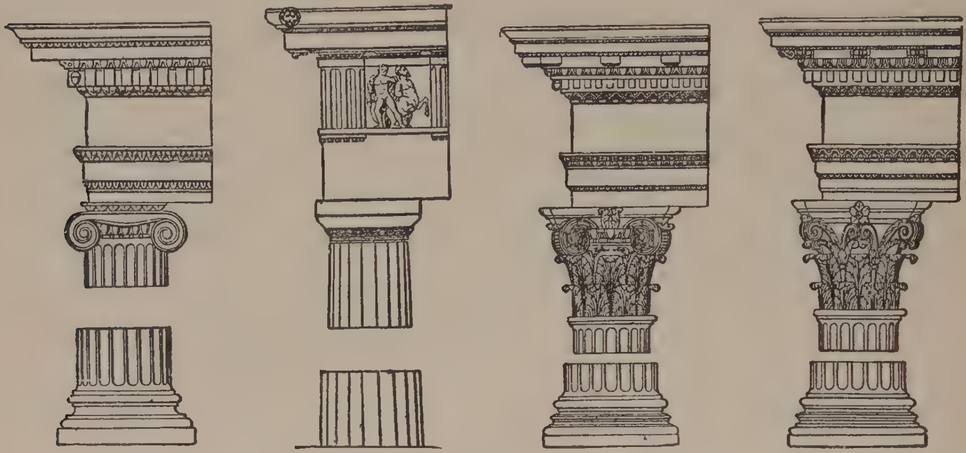
Architecture occupies a foremost position among the fine arts. Although it may be said to include all kinds of construction, in a higher sense it relates only to the buildings which please the eye, gratify the mind, or answer utilitarian purposes.

For the purpose of study, the subject is usually divided with reference to the purposes that the structures serve in the economy of life. This gives rise to a large number of classifications, but, as a matter of convenience, we confine them to the three headings of civil, military, and religious. Many of the articles to which reference is made are further explained by correlated topics, giving the student a wide range of information.

Outline.

I. Civil Architecture.

Amphitheater.
Aqueduct.
Arch.
Arch Triumphal.
Bath (Bathing).
Bridge.
Canal.
Capitol.
Catacombs.
Circus.
Colosseum.
Column.
Elevator.
Forum.
Fountain.
Fresco.
Hotel.
Louvre.
Luxembourg.
Palais Royal.
Pyramid.
Sphinx.
Sewer (Sewerage).
Theater.
Tomb.
Tuileries.
Tunnel.
Vault.
Westminster Abbey.
White House.


Ionic Order. Doric Order. Composite Order. Corinthian Order.
STYLES OF COLUMNS.

II. Military Architecture.

Abatis.
Acropolis.
Buttress.
Castle.
Citadel.
Fortification.
Pontoon.
Portcullis.
Prisons.

III. Religious Architecture.

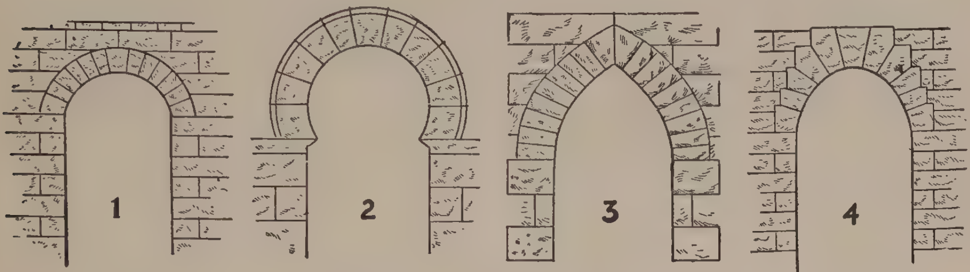
Alhambra.
Altar.
Babel, Tower of.
Basilica.
Cathedral.
Church.
Minaret.
Monastery.
Mosque.
Oratory.
Pagoda.
Pantheon.
Peter's, Saint.
Pitti Palace.
Sophia, Church of Saint.
Tabernacle.
Taj Mahal.
Temple.

Builders and Architects.

Angelo, Michael.
Bernini, Giovanni.
Brunelleschi, Filippo.
Cheops.
Chephren.
Eads, James Buchanan.
Hunt, Richard Morris.
Jones, Inigo.
McKim, Charles Follen.
Paxton, Sir Joseph.
Richardson, Henry Hobson.
Roebling, Washington A.
Solomon.
Street, George Edmund.
Walter, Thomas Ustick
Waring, George Edwin
Waterhouse, Alfred.
Wren, Sir Christopher.

Correlated Subjects.

Acoustics.
Acropolis.
Adobe.
Arch.
Asphalt.
Brick.
Bungalow.
Carving.
Cement.
Clay.
Concrete.
Dome.
Façade.
Gable.
Gothic Architecture.
Granite.
Gravel.
Iron.
Lime.
Limestone.
Lumber.
Marble.
Mosaics.
Roof.
Sand.
Stadium.
Slate.
Steel.
Stone.
Terra Cotta.
Tile.
Window.



1, Semi-circular. 2, Moorish. 3, Gothic. 4, Elliptical.

ARCHES.

Another classification of architecture consists of the divisions which pertain particularly to some definite era or to some nation or people. The beginning may be assigned to prehistoric times, especially in Egypt, where the essential principles of architecture were well understood before the dawn of history. This is exemplified by the remains of vast structures, chiefly temples and monuments, built under kings of the old empire. The student may study the general subject under the following outline, which divides the architectural forms by classes into

Ancient, Mediaeval, and Modern.

I. Ancient.
  1. Egyptian.
    A. Size—Very large.
    B. Design—Simple and substantial.
    C. Material—Plain, rough blocks of stone.
    D. Early destruction of largest buildings.
    E. Walls and pillars—Ornamented.
    F. Pyramids.
    G. Tombs.
    H. Obelisks.
    I. Temples.
    J. Palaces.
    K. Strength and durability.
    L. Religious sentiments.
    M. Symbols and hieroglyphics.
  2. Babylonian and Assyrian.
    A. Less known.
    B. Vaults and arches used.
    C. Material—Sun-dried brick, alabaster, wood, carved stone.
    D. Palaces.
    E. Temples.
      a. Stepped pyramids.

        - b. Of great height.
        - c. Externally massive.
        - d. Receding stories brilliantly colored and faced with glazed tiles.
    - F. Style lasted from 6000 B. C. to time of Nebuchadnezzar without essential change.
- 3. Grecian.
    - A. Styles.
        - a. Doric.
        - b. Ionic.
        - c. Corinthian.
    - B. Most beautiful erected between 650 and 324 B. C.
    - C. Adorning—Paintings, sculpture, and magnificent coloring.
    - D. Temples.
        - a. Structure supported by massive columns.
        - b. Dedicated to patriotism.
        - c. Parthenon at Athens still remaining.
        - d. Temple at Selinus, Sicily.
    - E. Theaters—Seating capacity, 20,000.
    - F. Ruins.
        - a. Sicily.
        - b. Greece.
        - c. Asia Minor.
    - G. Decline of this class—After death of Alexander the Great.
- 4. Roman.
    - A. Theaters and amphitheaters.
    - B. Temples.
    - C. Bridges.
    - D. Aqueducts and sewers—Skilfully made, with use of the arch.
    - E. Baths or thermae—Suitable for use of multitudes at a time.
    - F. Triumphal arches.
    - G. Private residences and villas.
    - H. Orders.
        - a. Tuscan.
        - b. Composite.
    - I. Characteristics.
        - a. Patterned somewhat after Grecian.
        - b. Utilitarian.
        - c. Imposing and costly in appearance.
        - d. Pictorial.
        - e. Greatest perfection reached in reign of Augustus.
        - f. Decline began after death of Hadrian.
    - J. Examples.
        - a. Titus Arch at Rome.
        - b. Colosseum.
        - c. Pantheon.

II. MEDIAEVAL.

- 1. Byzantine.
    - A. Christians permitted by Constantine to build places of worship.
    - B. Church of Saint Sophia.
        - a. At Constantinople.
        - b. Constructed by Justinian.
        - c. Has Roman arch and magnificent dome.
        - d. Later converted into Turkish mosque.
    - C. The most beautiful and valuable works destroyed with fall of Rome.
    - D. Architecture of the Normans flourished in the 13th century.
    - E. That of the Lombards in South Germany in the 8th century.

- F. Moorish or Saracenic forms introduced into Europe in the 8th century.
- G. Example—Alhambra, near Granada, Spain.
- H. Characteristics.
    - a. Dome.
    - b. Gorgeous, but harmonious, color decorating.
    - c. Glass—Mosaic on gold ground.
    - d. Arches supported on columns.

2. Romanesque.
    - A. Came with the spread of Christianity.
        - a. Germany.
        - b. Italy.
        - c. France.
        - d. England.
        - e. Spain.
    - B. Three-aisled Christian basilica converted into a vaulted structure.
    - C. Development of the vault.
    - D. Dome, tunnel vault, cross vault.
    - E. Crypt, porch, tower, façade, ribbed groin vault.
    - F. Stone used instead of brick.
    - G. Heavy, round, or clustered piers used instead of columns, and spaced farther apart.
    - H. Appearance—Rich, heavy, and impressive.
    - I. Examples.
        - a. Church of Saint Étienne, France, founded by William the Conqueror.
        - b. Church of Michele, in Pavia, regarded the oldest in Italy.
3. Gothic.
    - A. A continuation of the Romanesque.
    - B. Introduced into Germany in the 8th century by Charlemagne.
    - C. Style.
        - a. Pointed arches.
        - b. Clustered pillars.
        - c. Vaulted roof.
        - d. Profusion of ornaments.
    - D. Later changes.
        - a. Windows divided into small panes.
        - b. Doorways constructed with square tops over pointed arches.
        - c. England adopted Elizabethan style in 17th century.
        - d. Italians took up Renaissance style.
    - E. Specimens.
        - a. Cathedral of Cologne, Germany.
        - b. Westminster Abbey, London.
        - c. Gothic cathedral, Amiens, France.
        - d. Cathedral of Notre Dame, Paris.

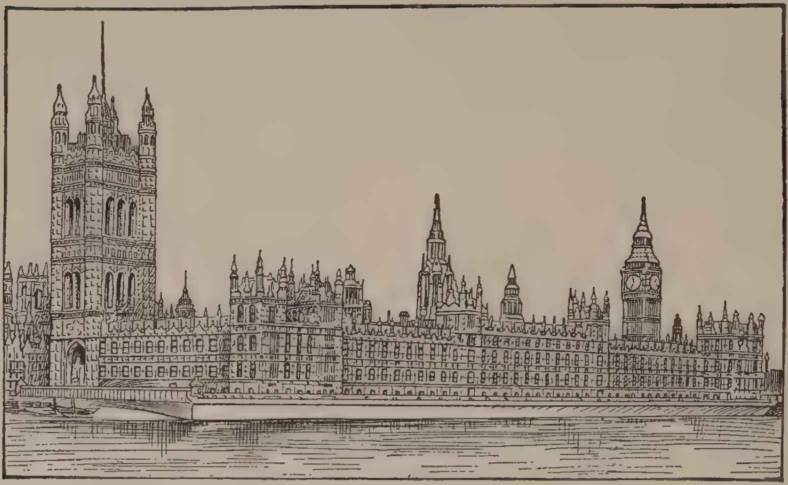
III. MODERN.

1. Materials.
    - A. Iron.
    - B. Steel.
    - C. Concrete.
    - D. Cement.
2. Classes.
    - A. Private residences.
    - B. Churches.
    - C. Business houses.
    - D. Hospitals.
    - E. Government buildings.
    - F. Elevators.
    - G. Tunnels.
    - H. Towers.
    - I. Monuments.
    - J. Railroad construction.

3. Characteristics.
    - A. An imitation of older forms.
    - B. Great height.
    - C. Close proximity.
    - D. Rapidity in construction.
    - E. Durability.
    - F. Large capacity.
    - G. Safety from fire.

4. European.
    - A. Statue of Liberty.
    - B. Eiffel Tower.
    - C. Simplon Tunnel.
    - D. Vatican, Rome.
    - E. Parliament Building, London.
    - F. Saint Peter's, Rome.
    - G. Westminster Abbey, near London.

5. American.
    - A. Washington Monument.
    - B. Capitol, Washington, D. C.
    - C. Mormon Temple, Salt Lake City.
    - D. Singer Building, New York City.
    - E. Masonic Temple, Chicago.
    - F. Union Trust Company office, Saint Louis.
    - G. Metropolitan Building, New York City.



PARLIAMENT BUILDING AT LONDON, ENGLAND.

Questions on Architecture.

By what were the characteristics of early architecture determined?
Where are the oldest remaining structures? 132.
Write a descriptive article of the tombs and pyramids of Egypt.
Which is the most noted of the ruined palaces of Persia and Assyria?
State the noted riddle of the Sphinx.
Name some of the most noted architects of Greece.
What were three styles used in Grecian architecture?
Describe the Acropolis at Athens.
Why were the baths or thermae of Rome so notable?
In the construction of what two classes were the Romans especially skillful?
What are the chief characteristics of the Byzantine style?
State some specimens of Gothic architecture.

Tell about the temple at Selinus, the Colosseum at Rome, the Cathedral of Cologne, and the Titus Arch.

What materials are now used in general construction?
State some characteristic features of modern architecture.
Name some famous types of the present European styles.

What are some of the most wonderful and finest buildings of recent design in America?

Sculpture.

Sculpture occupies a foremost position among the fine arts. The art of carving or chiseling figures from wood or stone was developed to a very high degree by the ancients. Indeed, antiquity claims a very prominent place in sculpture as well as in painting, as is witnessed by the products of ancient Egypt, Greece, and Rome.

This work contains scores of articles on this and correlated subjects, but the general article on sculpture is the basis for study. It presents under subheads the processes, materials, methods, and history of the art, enabling the student to study the characteristics and development of the different schools.

Correlated Topics.

Alabaster.
Bas-Relief.
Bell.
Bronze.
Carving.
Cleopatra's Needles.
Colossus.
Gypsum.
Hieroglyphics.
Iconoclast.
Idol.
Ivory.
Laocoön.
Marble.
Niobe.
Obelisk.
Parthenon.
Pyramids.
Sphinx.
Stucco.
Terra Cotta.
Tomb.
Totemism.
Wood Carving.

Biographies of Sculptors.

Angelo.
Bartholdi.
Bernini.
Brown.
Canova.
Cellini.
Crawford.
Donatello.
Drake.
Flaxman.
Foley.
French.
Ghiberti.
Gibson.
Greenough.
Hosmer.
Houdon.
Kiss.
Kraft.
Niehaus.
Partridge.
Phidias.
Praxiteles.
Rauch.
Rinehart.
Rodin.
Rogers.
Saint Gaudens.
Schadow.
Schilling.
Siemering.
Story.
Taft.
Thorwaldsen.
Vinci.
Ward.

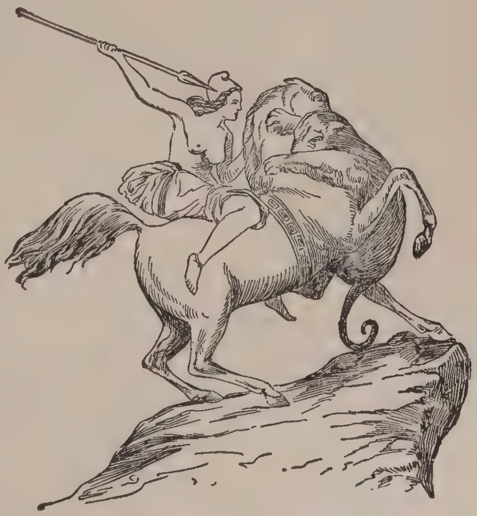
Outline on Sculpture.

I. DEFINITION: Sculpture is the art of cutting or carving figures from stone, wood, metal, or some other hard substance.

II. CLASSES.
  1. Sculpture proper.
    A. Dimensions—Length, breadth, and height.
  2. Relief.
    A. Dimensions—Thickness or depth relatively produced.
    B. Bas-relief.
    C. Mezzo-rilievo.
    D. Alto-rilievo.

III. MATERIALS.
  1. Marble.
  2. Stone.
  3. Ivory.
  4. Gold.
  5. Bronze.
  6. Granite.
  7. Wood.

IV. METHODS.
  1. Carved in wood, etc.
  2. Cut in stone.
  3. Moulded.
    A. Work modeled first in soft clay.
    B. Supported by skeleton frame.
    C. Plaster cast then made.
    D. Copy prepared.



KISS'S AMAZON AT BERLIN, GERMANY

    E. Finishing touches.
    F. Metal cast.
  4. Appearance.
    A. No color (as formerly) and no picturesque background.
    B. Wholly depend upon pure form.
    C. Most perfect specimens—Those truest to nature.
V. HISTORY.
  1. One of most ancient of arts.
  2. First productions.
  3. Early productions—Mythology and religion.
  4. Egyptian.
    A. Earliest forms of higher art.
    B. Represent men and industries.
    C. Large, symmetrical, stable; of calm and solemn expression.
    D. Sphinx.
    E. Value—Historically; influence upon the development of art in other countries.
  5. Assyrian.
    A. Historical and general scenes.
    B. More vigorous in spirit than Egyptian.
    C. Much inferior in idealistic beauty and trueness to nature.
    D. Period of highest development.
  6. Persian—Compare with Assyrian.
  7. Grecian.
    A. Carried sculpture to high perfection.
    B. Earliest specimens.
    C. Noted sculptors.
    D. Masterpieces.
    E. Characteristics.
  8. Roman.
    A. Attributed to Grecian artists.
    B. Transportation of treasures to Rome.
    C. Decline and advancement.
    D. Carvings of Niccola Pisano and son.
    E. Revival of art—Lorenzo Ghiberti.
    F. Leaders in the various centuries.
  9. Name leaders and masterpieces of—
    A. Germany.
    B. France.
    C. Denmark.
    D. United States.

Questions on Sculpture.

What is sculpture? Who were the earliest skilled workmen in this art? 2568.

From what are the figures made before casting?

Explain three forms of sculpture in relief.

What materials are generally used?

State some of the disadvantages of this art compared with painting

Describe the modern process of making a statue.

What representations did the early sculptors seek to produce?

Of what does the sculpture of China and India chiefly consist?

For what is the Egyptian art especially noted?

Sculpture is of what value to us historically?

Describe the famous Statue of Liberty.

Give a brief sketch of the life and work of Michael Angelo. 101.

Give a list of famous Italian sculptors.

Name some of the most celebrated productions of Thorwaldsen, Dürer, Flaxman, Taft, Saint Gaudens, Bernini, and Phidias.

Mention the sculptors of the following productions: *The Fighting Gladiator, Christ the Comforter, Laocoön, Ruth, Statue of Washington,* and *The Sleeping Faun.*

Name some prominent sculptors of the United States, and at least one of their pieces.

Art in Literature.

Seraphs share with thee
Knowledge: But art, O man, is thine alone!
—*Schiller.*

A flattering painter who made it his care,
To draw men as they ought to be, not as they are.
—*Goldsmith.*

His pencil was striking, resistless, and grand;
His manners were gentle, complying, and bland;
Still born to improve us in every part,
His pencil our faces—his manners our heart.
—*Goldsmith.*

Painting is welcome!
The painting is almost the natural man;
For since dishonor traffics with man's nature,
He is but outside; these pencil'd figures are
Even such as they give out.
—*Shakespeare.*

The hand that rounded Peter's dome,
And groined the aisles of ancient Rome,
Wrought in a sad sincerity;
Himself from God he could not free;
He builded better than he knew;—
The conscious stone to beauty grew.
—*Emerson.*

Sculpture is more than painting. It is greater
To raise the dead to life than to create
Phantoms that seem to live. The most majestic
Of the three sister arts is that which builds;
The eldest of them all, to whom the others
Are but the handmaids and the servitors,
Being but imitation, not creation.
—*Longfellow.*

Engraving.

Engraving, although an ancient art, is now employed most extensively in printing on paper. Other purposes for which engravings are used include stamping for decoration, as in making seal rings and in engraving bronzes and silverware.

Engravings made for printing consist either of incised designs or of relief designs. In the former process, plates of metal, usually copper, are made and the ink is applied to the incised designs. On the other hand, in the latter process, the image is produced from the relief designs. For general information on this subject consult the following

Correlated Subjects.

Camera.
Caracci, Agostino.
Doré, Paul Gustave.
Dürer, Albrecht.
Electrotyping.
Etching.
Half-Tone.
Lithography.
Photography.
Printing.
Wood Engraving.
Zinc Etching.

Outline on Engraving.

I. Origin.
   1. Egyptians.
   2. Phoenicians.
   3. Grecians.
   4. Printings from engravings common in China in the 10th century.
   5. Italians and Germans attained skill in the 13th century.
   6. Discovery made by Florentine artist.
   7. Earliest niello proof on paper (1452).
   8. Cuttings in stone, granite, cameo, metal, and armor.

II. Kinds.
   1. Wood engraving.
      A. Originated in China.
      B. Material—Hard, fine-grained wood, such as Turkish boxwood.
      C. Preparation of plate.
      D. Drawing of picture on the surface with pencil or brush.
      E. Engraver proceeds with fine steel tools.
      F. Easily duplicated by electrotype and stereotype.
   2. Lithography.
      A. Drawing or engraving made on flat lithographic stone.
      B. Process of developing impression.
      C. Zincography—From zinc plates.
      D. Chromolithography—Natural colors.
      E. Photolithography—Photographic negative transferred to stone plates. Used for maps, plans, outlines, etc.
   3. Etchings.
      A. Tools.
      B. Plates—Metallic (steel, copper).
      C. Wax, water, acid, and varnish.

- D. Processes.
    - a. Rebiting.
    - b. Line engraving.
    - c. Soft-ground.
    - d. Mezzotint.
    - e. Mixed style.
- E. Classes.
    - a. Half-tone—Magazines.
    - b. Line relief—Cheap newspaper illustrations.
    - c. Chalk plate—Small cuts and weather maps.
    - d. Intaglio engraving.
    - e. Wax—Railroad, geographical, state, county, and township maps.

4. Photography.
    - A. Its beginning.
    - B. Heliography.
    - C. Wet-plate process.
    - D. Dry-plate process.
    - E. Recent improvements.
        - (a) Color photography.
        - (b) Phototelegraphy.
        - (c) Instantaneous process.
        - (d) X-ray method.
        - (e) Astronomical photography.
        - (f) Photolithography.
        - (g) Photomicroscopy.
    - F. Methods.
        - (a) Preparation of plate.
        - (b) Exposure.
        - (c) Impression.
        - (d) Negative.
        - (e) Print-out paper.
        - (f) Toning.
    - G. Instruments.
        - (a) Camera.
        - (b) Kodak.
        - (c) Stereoscopic camera.

Questions on Engraving.

Give an account of engraving among the early Egyptians and Phoenicians.

What helpful discovery was made by Maso Finiguerra?

For what was engraving used in early times?

Why are line engravings and wood cuts going out of use?

State the value of copper in making etchings.

Describe the process of producing an etching.

For what is lithography used? What is electrotyping?

Where was the process of printing from engraving first commonly used? 923.

Of what are illustrations in daily papers usually made? Railroad maps? Weather maps?

Name the instruments used in photography.

State some recent improvements in photography. 2201.

Define half tone, graver, mezzotint, and negative.

What is the Daguerreotype process?

Music.

Music is the art of producing a succession of sounds in such combinations as to be pleasing to the ear. The sounds may be instrumental or vocal, depending upon whether they are caused by an instrument or by the human voice.

The art of music has to do with the imagination and the emotions. For this reason an agreeable succession of sounds is pleasing to the layman who understands few, if any, of the technical terms employed by musicians. However, the pleasure of listening to musical productions is greatly increased by a critical understanding of the technique by which harmonious results are obtained.

This work of general reference affords much pleasure to those who wish references in music and musical terms. Besides the general article entitled Music, the student will find ample information to enable him to speak and write authoritatively on this subject. This is true both of the technique of music itself as well as of musical terms, the history of music, and the lives of great musicians.

Outline for Study.

I. Definitions.

Standard or concert pitch.
Diatonic scale.
Octave.
Keynote or keytone.
Pitch.
Staff degrees.
Clef.
Musical staff.
Key signatures.
Key signs.
Sharps.
Flats.
Leger lines.
Modulation.
Concordat.
Chord.
Notes and rests.
Melody and harmony.

II. Divisions.

Melodics, rythmics, dynamics.

III. Musical Instruments.

Accordion.
Aeolian harp.
Bagpipe.
Banjo.
Bugle.
Calliope.
Chime.
Clarinet.
Concertina.
Cornet.
Cymbals.
Drum.
Dulcimer.
Fife.
Flageolet.
Flute.
Guitar.
Harmonica.
Harp.
Horn.
Jew's harp.
Lute.
Lyre.
Mandolin.
Ocarina.
Organ.
Pianoforte.
Saxhorn.
Tambourine.
Trombone.
Trumpet.
Viol.
Violin.
Violoncello.
Xylophone.
Zither.

IV. Musical Terms and Forms.

Bard.
Cantata.
Choir.
Chord.
Chorus.
Chromatic.
Conservatory.
Festival.
Guild.
Harmonics.
Hymnology.
Instrumental music.
Melody.
National Hymn.
Opera.
Oratorio.
Orchestra.
Psalms.
Quartette.
Recitative.
Reed.
Rhyme.
Singing.
Sonnet.
Sound.
Tone.
Trio.
Voice.

V. Biographies of Musicians.

Abt.
Auber.
Bach.
Balfe.
Barnby.
Beethoven.
Berlioz.
Brahms.
Bull.
Chopin.
Corelli.
Dvorók.
Flotow.
Gluck.
Gounod.
Handel.
Haydn.
Kubelik.
Lind.
Liszt.
Mendelssohn.
Meyerbeer.
Mozart.
Nordica.
Offenbach.
Paderewski.
Palestrina.
Patti.
Rossini.
Rubinstein.
Saint-Saens.
Schubert.
Schumann.
Sousa.
Strauss.
Sullivan.
Thomas.
Verdi.
Wagner.
Weber.

Test Questions in Music.

How does music rank among the fine arts?

By what is attested the popularity of music in ancient times?

Who were the earliest noted composers?

Define staff, melody, octave, opera, duet, chord, and crescendo.

Name six musical instruments in common use.

Distinguish between a choir and a chorus.

By whom was the aeolian harp invented? 26.

State some references to music found in the Bible.

Recite three quotations from literature in reference to music.

Name the authors of the following: *Home, Sweet Home, Star Spangled Banner, America, The Messiah,* and *Requiem.*

What composer is noted for the ease and dignity with which he wrote?

Name some of the best works of Schubert, Beethoven, Verdi, Mendelssohn.

Give a list of six noted singers. Of six composers.

Explain how a nation's character may be judged by the standard of its music.

Name a celebrated band leader. A leader of orchestras.

Give a brief sketch of the life of "The Swedish Nightingale." 1596.

For what is Frances Crosby noted? What peculiar disadvantage did she have?

Music in Literature.

Song forbids victorious deeds to die.
—*Schiller.*

Music should strike fire from the heart of man, and bring tears from the eyes of woman.

—*Beethoven.*

How sweet the moonlight sleeps upon this bank!
Here will we sit, and let the sounds of music
Creep in our ears: soft stillness, and the night,
Become the touches of sweet harmony.
—*Shakespeare.*

And the night shall be filled with music,
And the cares that infest the day
Shall fold their tents like the Arabs,
And silently steal away.
—*Longfellow.*

At every close she made, th' attending throng
Replied, and bore the burden of the song:
So just, so small, yet in so sweet a note,
It seem'd the music melted in the throat.
—*Dryden.*

Is there a heart that music cannot melt?
Alas! how is that rugged heart forlorn!
Is there, who ne'er those mystic transports felt
Of solitude and melancholy born?
—*Beattie.*

Orpheus could lead the savage race,
And trees uprooted left their place,
Sequacious of the lyre;
But bright Cecilia raised the wonder higher;
When her organ vocal breath was given
An angel heard,
And straight appeared,
Mistaking earth for heaven.
—*Dryden.*

Dictionary of Musical Terms.

Accelerando, Quicken the movement.

Accidentals, Sharps, flats, and naturals, introduced in a piece.

Accompaniment, The harmony; all the parts except the one carrying the melody.

Adagio, Quite slow.

Ad Libitum, or *ad lib.*, At will.

Affettuoso, Affectionately, tenderly.

Agitato, Anxiously, an agitated manner.

Allegretto, Briskly, but not as quick as allegro.

Allegro, Quick.

Al Segno, To the sign (Repeat from the sign :S: to the word *Fine*).

Andante, Somewhat slow and sedate.

Andantino, Not quite as slow as *andante.*

Animato; Animoso, In a spirited manner.

Appoggiaturas, Notes of embellishment written in small characters.

Aria, An air or song.

Arpeggio, The notes of a chord when played successively.

Assai, Very, extremely.

A tempo, In the regular time.

Barcarolle, A Venetian boat song; applied to a light, graceful composition in 6/8 measure.

Ben, Well; as *Ben Marcato,* well marked.

Brillante, Showy and sparkling.

Brio; Brioso, With brilliancy and spirit.

Cantibile, In a graceful, singing style.

Capriccio, Fanciful and irregular composition.

Cavatina, An air of one movement or part.

Chord, Several notes struck simultaneously.

Chromatic, Formed of semitones.

Coda, A few bars added as a close to a composition.

Con, With.

Copula; Coupler, A mechanical stop in an organ by which two rows of keys are connected.

Crescendo, *cres.*, or <, Gradually increase the volume of tone.

De Capo, or D. C., Repeat from beginning to the word *Fine.*

Decrescendo, *decres.*, >, Gradually diminish the volume of tone.

Delicato, Delicately.

Diatonic, Naturally, according to the degrees of the major or minor scale.

Diminuendo, or *dim.*, Gradually diminish the volume of tone.

Dolce, Sweet and soft.

Dolcissimo, As sweetly as possible.

Dolore; Doloroso, Soft, sweet, and beautiful.

Duet, A composition for two voices; in two parts.

E., And.

Elegante, Gracefully, elegantly.

Espressivo; Con Espressione, With expression.

Extempore, Unpremeditatedly.

Fantasie; Fantasia, An irregular kind of composition, in which the rules are to a certain extent disregarded.

Finale, The last movement or part of an extended composition.

Fine, The end.

Forte, or f., Loud.

Fortissimo, or ff., Very loud.

Forzandoor, fz., or >, Sudden emphasis or force.

Fuoco, With fire.

Furioso, Furiously.

Giusto, In exact time.

Grave, Slowest degree of movement; extremely slow.

Grazioso, In a graceful, elegant style.

Idylle, A name given to graceful compositions in a romantic style.

I., IL., The.

Impromptu, An extemporaneous production.

Interlude, A short strain, usually of 4/8 measure, occurring between the verses of a hymn or psalm.

Interval, Difference in pitch of two notes.

Larghetto, Slow and solemn, but less so than *largo.*

Largo, Very slow and solemn.

Legato, Smooth and connected.

Lentando, Gradually retard or slacken the time.

Lento, In slow time.

L. H., Left hand.

Loco, Play the notes where written. The mark occurs after an 8va.

Lugubre, Mournfully, sadly.
M., See *Mezzo.*
Ma, But.
Maestoso, Majestic and dignified.
Main, Hand; M. G., Right hand; M. D., left hand.
Manual; Manuale, The keyboard in contradistinction to the pedals.
Marcato, Marked and emphatic.
Marche; Marcia, A march.
Marche Funebre, A funeral march.
Meno, Less.
Menuet; Minuet, A graceful movement in 3/4 measure.
Mezzo, or M., Medium or moderate; Mf., rather loud; Mp., rather soft.
Moderato, Neither slow nor quick; moderate.
Molto, Very; extremely.
Mosso, Rapid (Pin mosso, more rapid; neno mosso, less rapid).
Moto, or *Con Moto,* With agitation and earnestness.
Nocturne; Nocturno, Night Song. A name given to light and elegant compositions.
Non Troppo, Not too much.
Pastorale, A soft and rural movement in 6/8 measure.
Pathetico, Pathetically.
Piano, or *p.,* Soft.
Pianissimo, or *pp.,* Very soft.
Più, An adverb of augmentation, as *più presto,* quicker; *più piano,* softer.
Poco, A little, somewhat.
Prelude, A short introductory performance.
Prestissimo, As fast as possible.
Presto, Very quick indeed.
Quartet, A composition for four voices, or in four parts.
Quasi, As if, in the manner or style of.
Quintet, A composition for five voices, or in five parts.
Rallentando, or *Rall.,* Gradually retard the time and diminish the volume of tone.
Religioso, In a solemn style.
Reverie, A graceful composition in a free style.
R. H., Right hand.
Ritardando, *Ritard,* or Rit., Gradually slower.
Romance; Romanza, A simple and elegant melody.
Scherzo, A cheerful and humorous composition in quiet time.
Semplice, In a simple way; unaffected style.
Sempre, Throughout, always.
Senza, Without.
Sforzando, or *sfz.,* With sudden emphasis.
Slentando, Gradually retard the time, lentando.
Sostenuto, Sustained, smooth, and connected.
Spirito, or *Con Spirito,* With spirit.
Staccato, Short and detached.
Stringendo, Gradually quicken the time.
Suspension, Holding a note or chord after the next chord is struck.
Swell, or <>, Increase the volume of tone and then diminish it.
Tempo, Time.
Theme, A subject.
Tranquillo, In a tranquil manner; quiet.
Trio, A composition for three voices or parts.
Valse, A waltz.
Vigoroso, Boldly, vigorously.
Vivace, With extreme briskness and animation.
Vivo, Animated, lively.

Evening Bells.

Those evening bells, those evening bells!
How many tales their music tells,
Of youth, and home, and that sweet time
When last I heard their soothing chime!

Those joyous hours have passed away,
And many a heart that then was gay,
Within the tomb now darkly dwells,
And hears no more those evening bells!

And thus 'twill be when I am gone,
That tuneful peal shall still ring on,
And other bards shall walk these dells,
And sing thy praise sweet evening bells!

—*Moore.*

Painting.

Painting is a decorative art. It requires skill in the selection of colors as well as in the process of applying them to surfaces. The painter needs to go to nature for inspiration, to study objects and landscapes, as a means of making reproductions that are true to life.

This work of general reference treats the general subject of painting in a special article, but in addition to this are presented many relevant topics. The whole treatment affords a prolific source of information, not only on paintings, but on painters and their life and achievements.

Painting is a prolific field for the study of the beautiful. No home or public institution is cheerful without adornments from the hand of the painter. A few well-selected paintings from the great masters, a collection of the works of art, inspire home life with grand ambitions and lofty purposes. They quicken the imagination, sweeten the ties of friendship, and add luster to literature.

Correlated Subjects.

Art.
Canvas.
Ceramic Art.
Color.
Distemper.
Drawing.
Enamel.
Encaustic Painting.
Fresco.
Glass.
Landscape.
Mosaic.
Mummy.
Ochre.
Oil.
Paints.
Perspective.
Pottery.
Vase.
Water Colors.

Biographies of Painters.

Angelo.
Bartolommeo.
Bonheur.
Burne-Jones.
Caracci.
Cimabue.
Correggio.
Delaroche.
Dürer.
Eyck.
Giorgione.
Guido Reni.
Hals.
Holbein.
Inness.
Kaulbach.
Landseer.
Leutze.
Luini.
Memling.
Menzel.
Millais.
Millet.
Murillo.
Perugino.
Raffaelli.
Raphael.
Rembrandt.
Reynolds.
Rossetti.
Rubens.
Ruysdael.
Sarto.
Tintoretto.
Titian.
Vedder.
Vereshchagin.
Vernet.
Vinci.
West.
Whistler.
Wilkie.
Wyant.
Zeuxis.

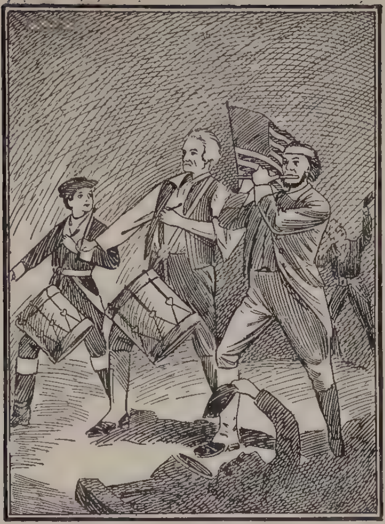
Outline on Painting.

I. Definition: Painting is the art of adorning surfaces with paints and colors.
    1. Aim.
    2. Mastery of the art.
        A. Knowledge of:
            a. Form.
            b. Design.
            c. Perspective.
            d. Color.
            e. Light.
            f. Shade.
II. General Methods.
    1. Drawing.
        A. Pencil.
        B. Crayon.
        C. Charcoal.
        D. Pastel.
        E. Water color.
    2. Oil painting.
        A. Canvas.
        B. Panel.

- 3. Mural.
  - A. Fresco.
  - B. Distemper.
  - C. Encaustic.
- 4. Others.
  - A. Porcelain.
  - B. Vase.
  - C. Glass.
  - D. Terra cotta.
  - E. Enamel.

III. VARIETIES.

- 1. Decorative.
- 2. Portrait.
- 3. Landscape.
- 4. Marine.
- 5. Historical.
- 6. Genre.
- 7. Fruit and flowers.
- 8. Battle.
- 9. Architecture.
- 10. Miniature.



MINIATURE OF WILLARD'S SPIRIT OF '76.

IV. HISTORY.

- 1. Comes from remote antiquity.
- 2. Painted decorations in temples at Thebes.
- 3. Mentioned by prophet Ezekiel.
- 4. Use.
  - A. Decorations.
    - a. Tombs.
    - b. Temples.
    - c. Mummy cases.
    - d. Public buildings.
    - e. Rolls of papyrus.
- 5. Greece—Most highly developed in painting.
  - A. Schools.
  - B. Noted scholars.
- 6. Rome—Introduced from Corinth about 650 B. C.
- 7. Italian—Developed about 1204.

Cannon to right of them,
Cannon to left of them,
Cannon in front of them,
Volleyed and thundered.
* * * *
Flashed all their sabers bare,
Flashed as they turned in air,
Sabering the gunners there,
Charging an army.
* * * *
When can their glory fade?
O the wild charge they made!
All the world wondered.
—*Tennyson.*

V. OIL PAINTINGS.

- 1. Introduced in 15th century.
- 2. Brought forward masters.
- 3. Developments.
  - A. Better expression.
  - B. Depth of color.
  - C. Richness in effect.
  - D. Inventive genius.
  - E. Elegance in color.
  - F. Individuality in character.

VI. GENERAL DEVELOPMENTS.

- 1. Deep shadows and enlargement upon indoor effects—Leonardo da Vinci.
- 2. Extreme contrasts of light and shade—Rembrandt.
- 3. Brilliancy and transparency of coloring—Jan Van Eyck.
- 4. Grandeur of design—Michael Angelo.
- 5. Elevated landscape painting—Guido.

VII. TWELVE GREAT PAINTINGS.

1. *The Last Supper*	Da Vinci.
2. *Beatrice Cenci*	Guido Reni.
3. *The Assumption of the Virgin*	Titian.
4. *Sistine Madonna*	Raphael.
5. *The Transfiguration*	Raphael.
6. *The Holy Night*	Correggio.
7. *The Last Judgment*	Michael Angelo.
8. *The Descent from the Cross*	Volterra.
9. *The Communion of Saint Gerome.*	Domenichino.
10. *The Immaculate Conception*	Murillo.
11. *Aurora*	Guido Reni.
12. *The Descent from the Cross*	Rubens.

Questions on Painting.

As a fine art, what is the aim of painting? 2080.

The knowledge of what subjects is involved in painting?

By what prophet is this art mentioned?

Upon what materials were paintings made in early days? Upon what now?

State a half dozen varieties of paintings.

What are art galleries? Locate a number of noted art galleries.

Name the special developments due to Vinci, Jan Van Eyck, and Guido.

In what respect did Michael Angelo surpass other artists of his time?

The ancient Egyptian paintings are of what value to us?

Tell how painting, sculpture, and religion are related.

Mention the leading works of Rubens and Menzel.

For what is fresco work especially useful?

Name the twelve great paintings of the world.

For what special lines of work are Landseer, Bonheur, and Raphael noted?

Mention the painters of the following: *The Angelus, Aurora, The Horse Fair,* and *The Shepherd's Chief Mourner.*

Name some of America's best painters and their works.

Correggio's The Holy Night.

The following Christmas carol, translated from the German by Bernhart P. Holst, interprets this picture:

Silent night, Holy night!
All repose,—halo light
Shines on the loving parental pair,
Who in the stall at Bethlehem are
By the heavenly Child,
By the heavenly Child.

Silent night, Holy night!
Shepherds see star most bright,
Angels singing hallélujah,
Bringing glad tidings from heav'n afar,
Christ, the Savior, is born,
Christ, the Savior, is born.

Silent night, Holy night!
Son of God, love's pure light,
O'erwhelms us, a redeeming power,
When we're strik'n by the saving hour,
Jesus Christ, through Thy birth,
Jesus Christ, through Thy birth.

Silent night, Holy night!
Earth, awaken at the sight,—
Let every creature bend the knee,
Let all proclaim the jubilee,
Peace on earth forever,
Peace on earth forever.

Study of Painters and Paintings.

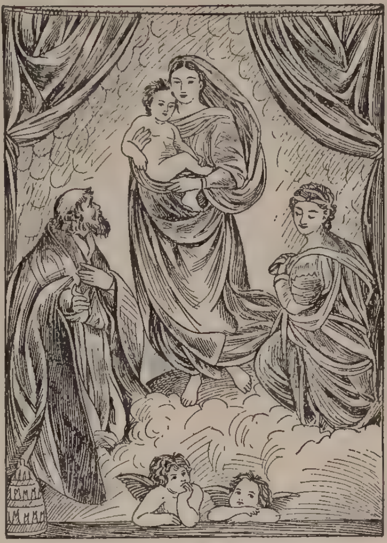
Sanzio Raphael.

"The perfect artist, the perfect man."

Sanzio Raphael, a celebrated Italian painter, was born at Urbino, Italy, on April 6, 1483. His death occurred on his thirty-seventh birthday, April 6, 1520, from a fever contracted while he was conducting some excavations at Rome. His premature death caused much mourning, and he was interred with great honors in the Pantheon.

The birthplace of Raphael is an interesting mountain town, directly east of Florence. It is in a section noted for its beautiful scenery, such as, later, Raphael loved to paint as a background for many of his most beautiful Madonnas.

The inhabitants, shut in as they were from the outside world, led simple and religious lives. His parents were deeply religious and their entire thought was how they could best rear the little son of whom they were so proud.



THE SISTINE MADONNA.

The father of Raphael was a painter and allowed him to assist about the studio. When Raphael was eight years old, the mother died, leaving the father to care for the child. In a short time a stepmother was brought home. Fortunately, she was a kind woman and could not have loved and cared more for the lad had he been her own. When the father died, she and his uncle managed his affairs with the greatest care.

The most noted of all the Umbrian painters at this time was a peculiar little man named Perugino—a man with unusual ability in painting Madonnas. To this painter Raphael was sent. It is said that, when the artist examined the lad's work, he exclaimed, "Let him be my pupil; he will soon become my master."

In this studio he remained many years, but the dream of his life, a chance to view the treasures of Florence, the art center of Italy, was not realized until in 1505. His first visit in Florence was short, but during the second visit he painted many of his best known pictures. He was most successful in his paintings of the child Jesus and the beautiful mother.

Some of his best known pictures are the *Sistine Madonna, Madonna of the Goldfinch, Madonna of the Meadow, Madonna of the Garden, Madonna Della Sedia,* and *Madonna Saint Cecilia.* All of these are finished in soft exquisite coloring. Indeed, Raphael has been considered one of the greatest colorists the world of art has ever known.

He was given a commission by the Pope to paint in fresco three large rooms of the Vatican and to decorate the corridor leading to these rooms. In this corridor are the paintings known as Raphael's Bible of the Fifty-two Pictures; forty-eight of these paintings represent Old Testament scenes and four are from the New Testament.

Death claimed the great artist at the age of thirty-seven years, before he had completed *The Transfiguration*, which was finished by his pupils.

The Sistine Madonna.

The Sistine Madonna, considered by many as Raphael's greatest picture as well as one of the most famous of the world's paintings, now occupies a room by itself in the Dresden Picture Gallery, in Dresden, Germany. It was painted originally as a banner for the monks of Saint Sixtus, but was afterward used as an altarpiece, and was purchased in 1753 by the Elector of Saxony for the Dresden gallery. The picture is really a canvas panel over eight feet long and nearly six and a half feet wide.

This work of art, as we usually see it, is always beautiful, yet we can hardly form any idea of its real beauty until we see it in the original colorings. The shades are so exquisitely blended and the expressions on the faces are so pure and ethereal that one hesitates in attempting a description.

In looking at the picture we can almost fancy we are looking out through a window across which are draped curtains of a rich green hue.

As we look through this window we seem to catch a glimpse of heaven; faintly through the background is seen a cloud of countless cherubs. Out of this cloud appear the Madonna and the Child as though taking their way to earth. The figures on either side represent Saint Sixtus and Saint Barbara. Saint Sixtus looks earnestly into their faces while Saint Barbara occupies a position of deep devotion as though waiting for them to pass by.

Underneath is a ledge upon which lean two beautiful boy angels, the final touch of love. The picture was completed without these cherubs, which were afterward added when Raphael found two small lads leaning on a parapet and gazing with intense earnestness on the beautiful picture. This famous Madonna was the last picture painted wholly by Raphael.

Study of the Picture. Looking at the picture as a whole and thinking only of the trend of the lines, what figure do they form? Studying it in detail we find it to be a combination of pyramids. What is the size of the original picture? Upon what was it painted? Where is the picture? Write a description of it as it looks to you. Compare the mother's expression with the expression on the face of the child. Which do you consider the more beautiful and why? The study of Raphael's life forms a basis for excellent language and composition work. Write a composition, using the following outline as a basis:

I. Describe the boy Raphael.
    a. Appearance.
    b. Disposition.
II. Raphael's home and early life.
III. His paintings.
IV. His later home and last days.

Whittier's Tribute to Raphael.

The tissue of the Life to be
  We weave with colors all our own,
And in the field of Destiny
  We reap as we have sown.

Still that the soul around it call
  The shadows which it gathered here,
And, painted on the eternal wall,
  The Past shall reappear.

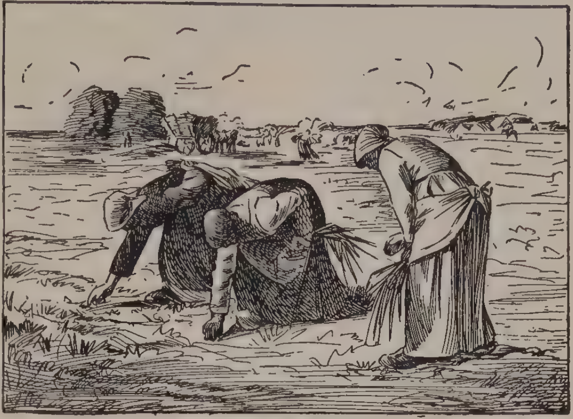
Think ye the notes of holy song
  On Milton's tuneful ear have died?
Think ye that Raphael's angel throng
  Has vanished from his side?

O no! We live our life again;
  Or warmly touched, or coldly dim,
The pictures of the past remain,—
  Man's works shall follow him!

—*J. G. Whittier.*

Jean François Millet.

Jean François Millet, the celebrated French artist, was born at Gruchy, Normandy, Oct. 4, 1814.



THE GLEANERS.

This part of France is noted for its hardy race of peasants, some of them bold fishermen, others thrifty farmers. He was the second of eight children and was brought up to do the hardest of outdoor work. Although he afterward became one of the world's most celebrated artists, yet he always remained at heart a good peasant.

The people of his vicinity were intensely religious and all their interests centered around the church. The Millet family lived quite a distance from their beloved church, yet the associations were very dear to them all, and, when in after years Millet brought his own family back to spend a long summer holiday, he was able to make many sketches of the old familiar scenes which furnished materials for some of his best known pictures.

The boy inherited some of his artistic tastes from his father, who was precentor of the parish church, and also conducted the village choir for many years. His mother belonged to a family of rich farmers who were looked upon as belonging to the gentle folk.

As a child Millet was fond of reading, having shown a passion for the Bible. Indeed, it has been said that an old illustrated Bible first inspired him with the idea of expressing himself in art. Quite early he showed marked signs of great artistic ability and loved to draw and paint men and women as he saw them under the burden of heavy toil. When the father recognized his son's ability, he sent him to Cherbourg to study. Though he received fairly good instruction here, and later in Paris, yet his greatest teacher was Nature, and he was delighted to get to Barbizon, where he could study and work out the peasant life which he so much loved.

In appearance he was a large, fine-looking man, with a countenance which bore the stamp of the thinker and scholar as well as artist. He was a man who had few intimate friends, a man who lived in a world of his own, yet the few people who were permitted to know him well loved him sincerely. He was twice married and always much attached to his home and home people.

It has been said that among all his paintings *Feeding Her Birds* was his favorite, for when he worked in his garden his children were always hopping about him like birds, and that this is really a picture of his own home and garden.

The *Angelus* is probably the best known of all his pictures. It represents an early twilight of an autumn day. The two peasants who have been working later than usual, in order to fill another sack with potatoes, are suddenly reminded of the hour of prayer by the ringing of the *Angelus*. An atmosphere of prayer pervades the entire picture.

The patron for whom this picture was intended was very disappointed with it and for a time Millet found difficulty in disposing of it. In 1889 it was purchased by an American and carried on an exhibition tour through most of the large cities of Canada and the United States. It is now in the collection of M. Chauchard in France; the canvas is somewhat cracked and the colors have grown darker.

The hour after sunset is sometimes called the hour of *Ave Maria*—

Ave Maria! blessed be the hour!
The time, the clime, the spot, where I so oft
Have felt that moment in its fullest power
Sink o'er the earth so beautiful and soft,
While swung the deep bell in the distant tower,
Or the faint dying day-hymn stole aloft,
And not a breath crept through the rosy air,
And yet the forest leaves seemed stirred with prayer.

—*Byron.*

The Sower, another of Millet's famous pictures, was exhibited at the Salon in 1850.

The Song of the Sower.

Brethren, the sower's task is done,
The seed is in its winter bed.
Now let the dark-brown mould be spread,
To hide it from the sun,
And leave it to the kindly care
Of the still earth and brooding air,
As when a mother, from her breast
Lays the hushed babe apart to rest,
And shades its eyes, and waits to see
How sweet its waking smile will be.
The tempest now may smite, the sleet
All night on the drowned furrow beat,
And winds, that from the cloudy hold
Of winter breathe the bitter cold,
Stiffen to stone the yellow mould,
Yet safe shall lie the wheat;
Till out of heaven's unmeasured blue
Shall walk again the genial year,
To wake with warmth and nurse with dew
The germs we lay to slumber here.

—*Bryant.*

The Gleaners.

THE PICTURE. In this picture of Millet's we get a glimpse of a harvest field on a large farm. The wheat has been gathered and carried by wagons to a place where it is stacked in great mounds. After all this has been done, the gleaners are permitted to come into the fields and gather what is left. This is an old, old custom and dates back to the earliest times. It is still observed in France, although gleaning is allowed only in daylight. The time of the picture is probably noon of a summer day, when the sun is high in the heavens.

The gleaners are three women of the peasant class, neatly dressed in coarse working clothes, representing the three ages of womanhood—a maid, a matron, and an aged woman.

Millet's unusual ability to see and portray light and shade is well brought out in this picture, as well as his love and sympathy for the French peasantry.

The painting was first exhibited at the Salon in 1876. In 1889 it was purchased by Madam Pommeroy for 300,000 francs and given to the Louvre, Paris.

Test Questions.

What is the picture called and why?

In what country is the practice of gleaning still carried on?

What are some of the old laws regarding it? (Read Lev. xxiii., 22; Deut. xxiv., 19).

What is the probable time of day? Give a reason for your opinion.

How many people do you see in the foreground? Describe each one and tell what they are doing.

Describe the scene in the distance.

Why are the gleaners only allowed in the field in daylight?

Teach the lesson of the dignity of toil.

Sublimer in this world know I nothing than a peasant saint, could such a one now anywhere be met with. Such a one will take thee back to Nazareth itself; thou wilt see the splendor of heaven spring forth from the humblest depths of earth like a light shining in great darkness. —*Thomas Carlyle.*

The Man with the Hoe has probably caused more discussion than any of Millet's pictures. Many people have thought that it was the artist's intention to set forth the degrading effects of work, but this is not true. He simply painted life as he had seen it and lived it.

The Man with the Hoe.

Written after seeing Millet's World-Famous Picture.

Bowed by the weight of centuries he leans
Upon his hoe and gazes on the ground,
The emptiness of ages in his face,
And on his back the burden of the world.
Who made him dead to rapture and despair,
A thing that grieves not and that never hopes,
Stolid and stunned, a brother to the ox?
Who loosened and let down this brutal jaw?
Whose was the hand that slanted back this brow?
Whose breath blew out the light within this brain?
Is this the Thing the Lord God made and gave
To have dominion over sea and land;
To trace the stars and search the heavens for power;
To feel the passion of Eternity?
Is this the Dream He dreamed who shaped the suns
And pillared the blue firmament with light?
Down all the stretch of Hell to its last gulf
There is no shape more terrible than this—
More tongued with censure of the world's blind greed—
More filled with signs and portents for the soul—
More fraught with menace to the universe.

What gulfs between him and the seraphim!
Slave of the wheel of labor, what to him

Are Plato and the swing of Pleiades?
What the long reaches of the peaks of song,
The rift of dawn, the reddening of the rose?
Through this dread shape the suffering ages look;
Time's tragedy is in that aching stoop;
Through this dread shape humanity betrayed,
Plundered, profaned and dis-in-herited,
Cries protest to the Judges of the World,
A protest that is also prophecy.

O masters, lords and rulers in all lands,
Is this the handiwork you give to God,
This monstrous thing distorted and soul-quenched?
How will you ever straighten up this shape;
Touch it again with immortality;
Give back the upward looking and the light;
Rebuild in it the music and the dream;
Make right the immemorial infamies,
Perfidious wrongs, immedicable woes?

O masters, lords and rulers in all lands,
How will the Future reckon with this Man?
How answer his brute question in that hour
When whirlwinds of rebellion shake the world?
How long will it be with kingdoms and with kings—
With those who shaped him to the thing he is—
When this dumb Terror shall reply to God,
After the silence of the centuries?

—Edwin Markham.

The Angelus.

Against the sunset glow they stand,
Two humblest toilers of the land,
Rugged of speech and rough of hand,
Bowed down by tillage.

O lowly pair! you dream it not
Yet on your hard unlovely lot
That evening gleam of light has shot
A glorious passage;
For prophets oft have yearned and kings
Have yearned in vain to know the things
Which to your simple spirits brings
That curfew message.

Enough for us
The two lone figures bending thus,
For whom that far off Angelus
Speaks Hope and Heaven.

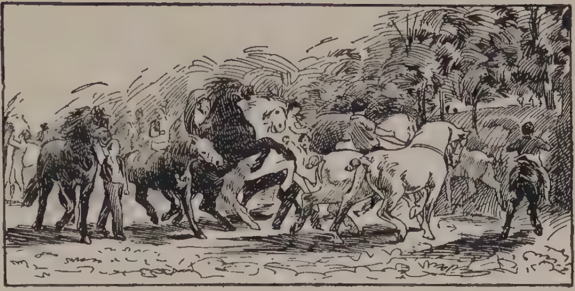
—Lord Houghton.

Some other well-known pictures are:

"The Shepherdess," "The Gleaners," "Potato Planters," "Filling the Water Bottles," "The Church at Greville," and many others, all representing peasant life.

Jean François Millet has been called the "Dante of peasants and the Michael Angelo of rustic art." His death occurred in Barbizon, France, in 1875.

Rosa Bonheur.



THE HORSE FAIR.

The life of Rosa Bonheur is one of the most interesting of all artists, including as it does years of poverty and struggle, and later years of fame and all the luxuries wealth can procure. To-day her name is loved and honored by the whole world, especially by the children, with whom she probably stands as first choice among artists.

Much of this fame of Rosa Bonheur is due to the careful training she received from her father, who was a teacher as well as an artist. As an instructor he possessed great ability, and his methods of instruction were far in advance of the times in which he lived.

Among his earlier pupils was a beautiful musician with whom he fell in love and afterward married. They made their early home in the quaint old town of Bordeaux, on the west coast of France. Here, on March 22, 1822, was born the subject of this sketch. Her early years were spent in perfect freedom with her pets and animals as her playful companions. She dearly loved to follow them about and early became a close observer of the outside world, through these observations enjoying much that an ordinary child would have considered dull and uninteresting.

Bordeaux was a commercial city with almost no opportunities for one of artistic tastes, so the Bonheurs were easily prevailed upon to remove to Paris. Their change occurred just at the breaking out of the Revolution, a most unfortunate time for the father to gain the patronage he so much needed. But only a short period elapsed before pupils were attracted to him and he was engaged to make illustrations for a scientist who was getting out a work on natural history.

Upon the death of the mother, in 1835, the father was left alone to care for the family of children. Thoroughly impractical and crushed with sorrow over the loss of his beloved wife, he saw no better way to care for his children than to separate them. A kind friend took the youngest child, the two boys were sent to a boarding school, and Rosa was placed in another. School life was not to her liking. She was fond of all out-of-door sports and so exceedingly careless in her dress that she was often the subject of ridicule. She paid very little attention to books; about the only pleasure she derived from them was to scribble them full of pictures, sketches of animals, and funny pictures of teachers and friends. She made no attempt to gain the good will of her instructors and, as she was the instigator of many of the pranks of the school, one can easily see that the impression made was far from a favorable one. The little girl was next sent to a Madame Gaindorf to learn to sew, and in this, too, she was a failure.

Then an artist friend of her father's took her and, giving her brush and colors, she allowed her to assist in the studio. For the work she was paid a few cents. At last, the father, not knowing what to do, took her into his own studio. He was busy with his work and could give her almost no attention, yet she was perfectly happy and contented, amusing herself with paints and colors.

Her first work of any value was a bunch of cherries, which was so cleverly drawn that her father resolved from that time on she should have careful training. She soon made such rapid progress in her work that she began copying the great pictures in the Louvre. This work she did so well that her copies brought good prices and she was able to aid her father in caring for his family. This copying gave her the highest training, which she afterwards fully appreciated; concerning it she said: "I cannot repeat sufficiently to young beginners who wish to adopt the hard life of the artist, to do as I have done: stock their brains with studies after the old masters. It is the real grammar of art, and time thus employed will be profitable to the end of their careers."

She spent many years in studying the anatomy of animals until she understood it as thoroughly as a physician knows the structure of the human body. In order to perfect herself along this line, she spent much time visiting the slaughterhouses of Paris. Knowing animals so thoroughly enabled her to sketch quickly, and it was in this power to draw rapidly and accurately that she excelled.

Her first picture to be exhibited in the Salon was a study of rabbits, drawn from life. In 1847 she took her first prize, a gold medal of the third class; in 1850 she was successful in gaining the first prize.

To no one did these honors mean so much as to the aged father, who had watched her progress with fond hopes for her highest success. His last years had been easier, for he had been given an appointment in a young ladies' drawing school, but his health began to fail while she was engaged on the picture *Oxen Ploughing,* which afterward brought her much fame. When it was finished, he summoned strength enough to go and see it. The success of this picture seemed to be the crowning glory of his life and he lived but a short time after this.

Upon the death of her father, she was given his position and carried on his work until her departure for By, which was afterward her home. This new home was very near Fontainbleau Palace, which was the favorite residence of Napoleon III. and the Empress Eugénie. She soon became a great favorite of the Empress and it was through her influence that the badge of the Legion of Honor was bestowed upon her. In after years she received many honors, coming from many countries, but the one that most delighted her was the one conferred by President Carnot, in 1893, which made her an Officer in the Legion of Honor. This last honor should be especially interesting to Americans, as it was bestowed on account of the work sent to the World's Columbian Exposition at Chicago.

For many years she made a study of animals; lions and tigers, the stronger animals, appealing most to her. The lions she used as models became great pets and seemed to know and love her. During one of her absences, one of her pets, Nero, was sent from home that he might be better cared for. He grieved for his friend and refused to be comforted. When she returned she found him ill and in a few days he died with his head on her arm.

This beloved artist, whose hair had been whitened by much sorrow, whose countenance always wore the same sweet and placid expression, died at By, May 25, 1899, at the age of 77 years.

The Horse Fair.

Rosa Bonheur's picture *Oxen Ploughing* proved such a success that she was fired with a desire and ambition to do something much greater and better. With this thought in mind she planned the *Horse Fair.* In order to do this well she made a careful study of horses, visiting horse fairs and markets, in spite of the fact that her friends had placed at her disposal their finest horses.

To get about easily she adopted male attire, which she found so very convenient that she afterward used it when at work.

As the horses were to be two-thirds life size, the canvas required was an immense one and it was necessary for her to use a ladder much of the time in working. The completed picture was exhibited in the Salon in 1853.

On account of the merit and great ability displayed in this work, the artist was allowed the privilege of exhibiting in the Salon without examination.

The *Horse Fair* was afterward loaned for an exhibition in Ghent. The Belgians were not only delighted with the picture, but were so pleased with the artist's generosity that they sent her a cameo reproduction of the picture in miniature.

At the close of the exhibition, she was offered 40,000 francs for it. She accepted the proposition and the picture was on exhibition first in England, then in America.

It was finally bought by a wealthy American for 300,000 francs and is now in the Metropolitan Museum of Art, New York City.

Questions on The Horse Fair.

> A beautiful picture is a silent teacher.
> —*Selected.*

What special preparation did Rosa Bonheur make for the production of this picture?

What costume did she adopt and why?

How many horses can you count? How many men? How large are the horses?

Describe one horse which you consider more beautiful than the others.

Where and when was this picture first exhibited? How was it received?

In what place was it afterward exhibited?

When the artist sold the picture, how much did she receive for it?

Who finally bought the picture and how much did he pay for it?

Where does it now hang?

Describe the picture as a whole.

LETTER WRITING

Suggestions

1. It is important to have the first impression made by a letter favorable. Use good stationery and make the form and appearance the best possible.
2. Spell, punctuate and capitalize correctly; make the sentences clear and use good language.
3. Social letters should be written when we are in the mood for writing; then the pen will glide smoothly and we will be able to center the mind on consecutive thoughts.
4. Brevity and courtesy are essential, especially in letters of business.

> Letters are intended as resemblances of conversation, and the chief excellencies of conversation are good humor and good breeding.
>
> —*Walsh.*

DEFINITION. A letter is a written communication from one person to another. Letters may be either private or public. Private letters embrace *Letters of Courtesy, Letters of Friendship,* and *Letters of Business.* Public letters include *news letters* intended for publication and *essays* and *reports* addressed to some person or persons.

HISTORICAL. Letter writing in some form has been employed since the earliest ages. Messages of all kinds have been inscribed on every available substance—on stones, on skins of animals, on leaves of plants, and on tablets of clay. Many savages used the bark of trees for challenges of war or messages of good will.

Letter writing as now used is a form of composition and is more frequently employed than any other class of writing. For this reason its importance cannot be overestimated.

DIVISIONS OF A LETTER.

a. Heading.
b. Introduction.
c. Body of the letter.
d. Conclusion.
e. Superscription.

The subject-matter is by far the most important part of the letter, yet there are certain usages which are absolutely essential to successful letter writing. While these well-established principles may seem trivial in themselves, yet inattention to them displays ignorance or carelessness on the part of the writer and the consequences are very apt to be detrimental.

PAPER TO USE. The selection of paper depends largely upon the nature of the letters to be written. Business letters are usually written on larger sheets of paper than letters of friendship and other notes. The sheet selected should be appropriate to the purpose for which it is employed, both in size and quality. Any good bookstore is able to furnish sizes adapted to the wants of any article or class of letters written.

For personal letters, the order in which the pages are used and the sheet is folded should be such as shall not be confusing to the reader. The most careful attention should be given to margins, paragraphs, and indentations. It is very important to be original and to avoid imitating the style of others. What is written should represent the writer, not some one else.

HEADING. The heading consists of the post-office address of the writer and the date on which the letter is written. Custom has decreed that the proper place for the heading is in the right-hand upper corner of the first page. The first line should be about one and a half inches from the top of the page. The second line should be commenced a little to the right and the third line, if any, a little to the right of the second, thus:

1 Alliance, Ohio, Sept. 4, 1923.

2. 1342 Fifth Avenue, New York City,
Aug 12, 1923

3. University of Minnesota,
Minneapolis, Minn.,
Oct. 22, 1923.

4. R. F. D. No. 3,
Avondale, Chester Co., Pa.,
Nov. 26, 1923.

It is essential to begin every important part of the heading with a capital letter. The parts should be separated by commas, the abbreviations should be followed by periods, and a period should be placed at the end of the heading.

INTRODUCTION. The introduction consists of two parts, the *formal address* and the *salutation.* The *formal address* embraces the *title,* the *name,* and the *residence* or *place of business* of the person addressed. Whether the address takes up one, two, or three lines is optional with the writer, but each line should be followed by a comma, except the last line, which should be followed by a period. Titles are prefixed before the name, as follows:

Master—boy.

Miss—girl or unmarried lady.

Misses—several unmarried ladies.

Mr.—gentleman.

Messrs. (Messieurs)—several gentlemen.

Mrs.—married lady or widow.

Mesdames (mȧ-dȧm′)—several married ladies or widows.

Rev.—clergyman.

Rev. Dr.—clergyman who is a doctor of divinity.

Dr.—physician or surgeon.

Hon.—public man.

Esq.—may follow name of gentleman, but two titles, as Mr. James Smith, Esq., should not be used.

Prof.—prominent teacher.

A. M., LL. D., etc., may be suffixed in writing persons who hold literary or professional degrees.

SALUTATION. The *salutation* is the word or phrase of address used in beginning the letter. It varies with the formality of the letter, or the position occupied by the person addressed.

Such terms as *Sir, Madam, Rev. Sir,* etc., may be used in writing strangers, but in general writing they should be avoided, as they are too formal. In letters of friendship the salutation may be *My dear Elizabeth, My dear nephew, Dear Aunt Mary,* etc.; in a business letter to an individual it should be *Dear sir, My dear sir,* or *My dear Miss Martin;* in a letter to a firm it should be *Sirs, Dear Sirs,* or *Gentlemen.*

The official title may be used in addressing a military or naval officer, as *Captain, Major, Commodore, General, Admiral.* A governor is addressed as *Sir, Governor,* or *His Excellency.* The President may be addressed as *President* or *His Excellency.*

No general rule is recognized in regard to punctuation of the salutation. The comma, colon, or semicolon may be used either alone or in connection with the dash, as *My dear sir:—*. According to some authorities the comma is the least and the colon is the most formal.

BODY OF THE LETTER. The *body of the letter,* or the part which contains the subject-matter, is the most important. It should be written in the natural flow of language and should vary in style and length according to its character.

It is usually thought best to commence the body of the letter one line below and directly underneath, or to the right, of the salutation. In business letters, where the salutation is short, it is not improper to begin on the same line with the salutation.

Formal letters should not be written on a half sheet, but business letters, where the card of the person or company is printed at the top of the sheet, may be written on a single leaf.

CONCLUSION. The *conclusion* of a letter consists of the *complimentary* *close* and the *signature of the writer.* The choice of a complimentary close depends upon the relations which exist between the writer and the person to whom the letter is addressed.

A business letter should be closed with an expression of respect only, such as *Yours truly, Yours respectfully, Yours very truly,* etc.

Letters of friendship require some expression of regard. Among the more common forms of complimentary closings are the following: *Your loving son, Ever your friend, Yours affectionately, Very sincerely yours,* etc.

The complimentary close should be written one line below the last line of the main part of the letter and a short distance to the right. Except in cases of familiar relationship, the name should be signed in full and should be clear and legible.

A lady should make it plain whether she is to be addressed as *Miss* or *Mrs.* This may be done either by placing Miss or Mrs. in parenthesis before the name, or by writing the whole address below and to the right of the signature. Thus:

(Miss) Effie Schuneman.

Mrs. Thomas L. Benton.

CAUTION. Titles of this kind should be prefixed only in writing to strangers. A married lady should sign the initials and name of her husband, and a widow should use her own initials and name.

SUPERSCRIPTION. The *superscription* is the address which is placed on the outside of the envelope. It should include all that is necessary for the letter to reach its destination and should be plainly and carefully written. It may be arranged in three or four lines, each one beginning to the right of the preceding one.

A properly written address contains the *title,* the *name,* the *street number,* the *post office,* and the *state* or *province.* When writing to a small town or country post office, it is well to give the county. The usual plan is to write the street number just below the name, but it may be written in the left-hand corner.

PUNCTUATION. The *punctuation* in writing the superscription has resolved itself largely into one of taste. All abbreviations and the last line should be followed by the period. If any other punctuation is used, it consists of a comma after each line, although these commas may be omitted with perfect propriety.

LETTERS OF BUSINESS. Since the purpose of business letters is to gain or impart information, they should be perfectly clear in meaning. It should be the purpose to make them short and concise. This is exemplified by the following motto posted over the door of the printing office of Aldus & Co.:

**Talk of Nothing but Business and
Dispatch That Business Quickly.**

Business men have no time to waste reading long, rambling letters, interspersed here and there with unimportant details. On the other hand, a business letter should be answered promptly and any information requested should be given accurately.

Too much stress cannot be laid upon punctuation, correct spelling, and clear English in business letters, as it is among business men that we find the keenest critics.

Applicants for responsible positions have been rejected either because they did not know the correct forms or, knowing them, did not heed them. For this reason, every letter should be examined carefully when it is finished to see that it contains no omissions and no mistakes.

LETTERS OF FRIENDSHIP. Letters of friendship are so different from business letters that it is more difficult to make definite rules in regard to them.

Their purpose should be to induce pleasure, and it should be the endeavor of the writer to make them as entertaining as possible. Much of the charm of a friendly letter lies in the easy and natural way in which it is written.

Only when we feel the individuality, the personality of the writer, has the written message any charm—a charm that seems to be slipping away from many letters of this new century, crowded out, perhaps, by the rush and throng of society engagements, by the demands of club life, or the absorption of business.

WRITING OF NOTES. Note writing bids fair to become a fine art. There are few days during a month when a note of some kind is not in order.

All presents should be acknowledged by writing a note. To omit this courtesy is to brand one's self as deficient of good breeding.

Notes may be *formal* or *informal*. *Formal notes* include all forms of *invitations, replies,* and *announcements*. They should always be written in the third person.

The heading, salutation, close, and signature should all be omitted. The address of the writer may be written either below the body of the letter or a little to the left.

Good by—my paper's out so nearly,
I've only room for Yours sincerely.
—*Thomas Moore.*

Models in Letter Writing.

As every letter of friendship depends upon what the writer has to say at the time, it is difficult to suggest models that answer the purpose in every detail. A good plan is to write as you would talk, giving the leading details in an interesting manner.

Friends and relatives enjoy good letters, whether they come from home or from a distant city or country. Such letters strengthen the ties of friendship and turn the mind to pleasant thoughts and hopeful ambitions. The rule is to write often and have many good things to tell in an interesting manner.

Model 1.

Letter of Business.

122 Center St.,
Des Moines, Iowa,
Sept. 4, 1929.

Newson & Co.,
378 Wabash Ave.,
Chicago, Ill.

Dear Sirs:

(Body of Letter).

Very truly yours,
Warner A. Dudley.

Model 2.

Letter of Business.

224 Michigan Ave.,
Chicago, Ill.,
Nov. 30, 1929.

Daniel Low & Co.,
232 Essex St., Salem, Mass.,

Gentlemen:

(Body of Letter).

Respectfully yours,
(Miss) Minnie A. Roe.

Model 3.

Letter of Friendship.

Madison, Wisconsin,
Oct. 12, 1923.

My dear niece,

(Body of letter).

Lovingly yours,
Miriam Bryant.

Model 4.

Superscription.

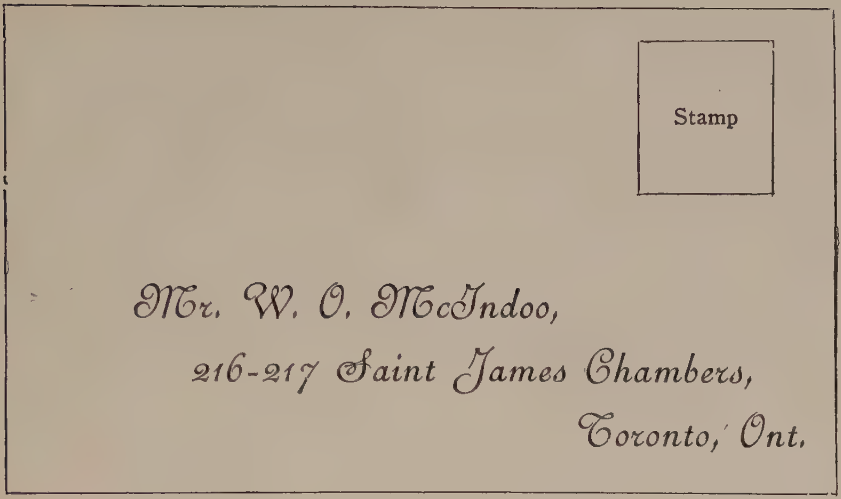
Stamp

Mrs. F. L. Wylie,
342 Euclid Ave.,
Cleveland, Ohio.

The writer of a note may place the address either below the body of the message or a little to the left.

Model 5.

Superscription.



Mr. W. O. McIndoo,
216-217 Saint James Chambers,
Toronto, Ont.

The writer of a note may place the address either below the body of the message or a little to the left.

Model 6.

INVITATION.

Mr. and Mrs. G. Bradshaw
request the pleasure of your company on
Tuesday Evening,
September ninth, at
eight o'clock.
1019 Euclid Ave.

Model 7.

ACCEPTANCE.

Miss LeCompte accepts with pleasure Mr. and Mrs. Bradshaw's invitation for Tuesday evening, September the ninth, at eight o'clock.

Model 8.

REGRET.

Mr. Jones regrets that a previous engagement prevents his accepting Mr. and Mrs. Bradshaw's kind invitation for Tuesday evening, September the ninth.

Model 9.

INVITATION.

My dear Mrs. Leathem,

Will you not give us the pleasure of your company at dinner on next Wednesday evening at six o'clock? Miss Rae of Davenport is visiting us, and we wish our friends to meet her.

Very sincerely yours,
BERTHA PIKE.

229 Center St.,
Nov. 20, 1926.

Model 10.

REGRET.

Nov. 21, 1923.

My dear Mrs. Pike,

I sincerely regret that I cannot accept your invitation to dinner next Wednesday evening, for I have made a previous engagement which it will be impossible for me to break.

Yours sincerely,
GRACE LEATHEM.

The difference between *formal notes* and *informal notes* consists in the forms in which they are written. All replies to informal notes should be written in an informal manner, being simply brief letters of friendship.

Model 11.

Introduction.

Sherbrooke, Que., Aug. 4, 1923.

Miss Anna Sherman,
Jamestown, N. Y.

My dear friend:

This will introduce to your kind consideration Mr. D. V. Gesner, a very worthy gentleman, whom I commend to your kind attention.

Your friend,
Ella T. Kearns.

Model 12.

Congratulation.

Boone, Iowa, July 20, 1923.

Miss Esse V. Hathaway,
Marshalltown, Iowa.

Dear friend:

Kindly accept my hearty congratulations on your success in writing and publishing your new book, *The Little Corsican.* I had the utmost faith in your ability to produce a work of great value, one that would be interesting in style and valuable for the facts of history which you collated, but let me say the beauty and value of the completed work surpass even the highest anticipations of your best friends.

You have my best wishes in the field which you have chosen, and I trust that your work will be entirely agreeable.

Very truly yours,
Gracia E. Tucker.

Model 13.

Condolence.

Chicago, Ill., Aug. 22, 1923.

Mr. John B. Alden,
Atlanta, Ga.

My dear sir:

Permit me to express to you the deep sorrow I felt on learning of your failure in securing the nomination for Governor in your State. Although you had the coöperation and support of a large part of the more intelligent voters, the time which you had for making a canvass was entirely too short.

Your position on the leading issues, in my opinion, is the correct one. Since "Truth, crushed to earth, will rise again," I am confident of your ultimate success. Deeply regretting the defeat for the present, I look hopefully forward to a complete victory in the future.

Very truly yours,
Belden J. Clark.

Model 14.

Application.

Tiffin, Ohio, July 23, 1923.

Holst Publishing Company,
Boone, Iowa.

Gentlemen: Kindly consider my application for the position of manager of sales for your company. I am a graduate of the Tiffin High School and hold a diploma issued by the Capitol City Commercial College of Des Moines, Iowa.

Herewith I enclose testimonials from a number of prominent business men of Cleveland and Chicago, certifying to my ability and successful experience in the line of work for which you are receiving applications.

Respectfully yours,
Chas. E. Medaris.

Model 15.

Recommendation.

Toronto, Ont., June 30, 1923.

Hon. John D. Jones,
President of the School Board,
Ottawa, Ont.

Dear sir:

The bearer of this letter, Prof. J. C. King, has been personally known to me the ten years last past as a teacher and superintendent of schools. I have visited the classes where he instructed and know of his ability to manage and teach.

Professor King is a teacher by nature and training. He has not only made an entire success of his work, but has acquired liberal and broad views of the teachers' profession. He is eminently fitted to take charge of your schools. I can speak of him and his work in the highest terms of praise.

Very respectfully yours,
David L. Maynard.

Exercise I.

Write suitable headings, salutations, complimentary endings, and signatures for the following:

To American Book Company, 300 Pike St., Cincinnati, Ohio.
To a dear friend.
To the school board, asking for supplies.
To the Governor of your State.
To a stranger.
To a dry goods firm.

Exercise II.

Write proper superscriptions to letters written to the following:

Miss Laura Graham, living at 1221 First Ave., Cedar Rapids, Iowa.

The wife of a minister in Toronto, Ont.

Your sister, who is visiting some friend.

William A. Mowry, 17 Riverside Square, Hyde Park, Mass.

The Rev. Charles St. Clair, 650 Center St., Davenport, Iowa.

Exercise III.

Write to John Wanamaker, Philadelphia, Pa., asking him to send you samples of silk.

In reply to an advertisement, write an application for the position of stenographer.

Write to the publishers of *The Century Magazine,* New York, N. Y., asking them to change your address from 212 State St., Chicago, Ill., to 28 High St., Columbus, Ohio.

Write to the President of University of California, Berkeley, Cal., for information regarding the course of study in law.

Exercise IV.

Write a letter to a classmate, who is in the hospital, telling him the school news.

Write to Puttkammer & Mühlbrecht, Buchhandlung für Staatswissenschaft, Berlin, Germany, for a copy of *Statistisches Jahrbuch.*

Write for information about silver mining to J. M. Macedo, Cónsul del Perú, Lima, Perú.

Write to your mother, describing your visit in Quebec.

Supposing you are camping, write of the experiences to your sister.

Write to some boy friend of your hunting and fishing expeditions in the West.

Exercise V.

Write an invitation to a simple home wedding.

Write a formal invitation to an afternoon reception.

Write an acceptance of the same.

Write regrets to the above invitation.

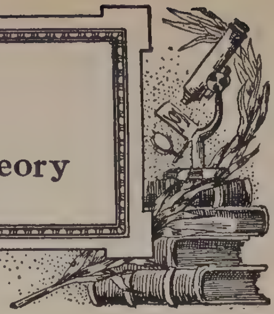
Write to a friend, thanking him for a box of candy or beautiful flowers.

Write congratulating your friend of his new appointment.

Write a note of sympathy to a dear friend, on the death of her mother.

Zoölogy

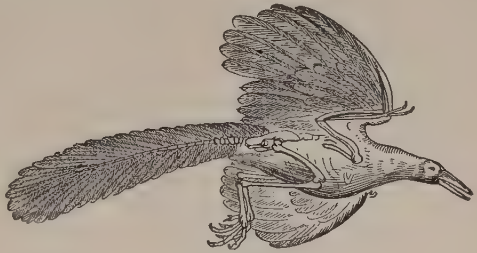
Condition **Theory**



ZOÖLOGY, the science that treats of the animal world, is studied from two aspects—*condition* and *theory*. The former aspect is concerned with facts as they are proven to be, while the latter takes into account the facts as they are observed. In these aspects, zoölogy relates to *observed phenomena* and the *deductions* that are based upon them.

This work of general reference is recommended as a prolific source of information for the study of this branch of general knowledge. It contains articles on all the important forms of animal life, both the past and present, and furnishes the basic facts for exhaustive research.

Outline.

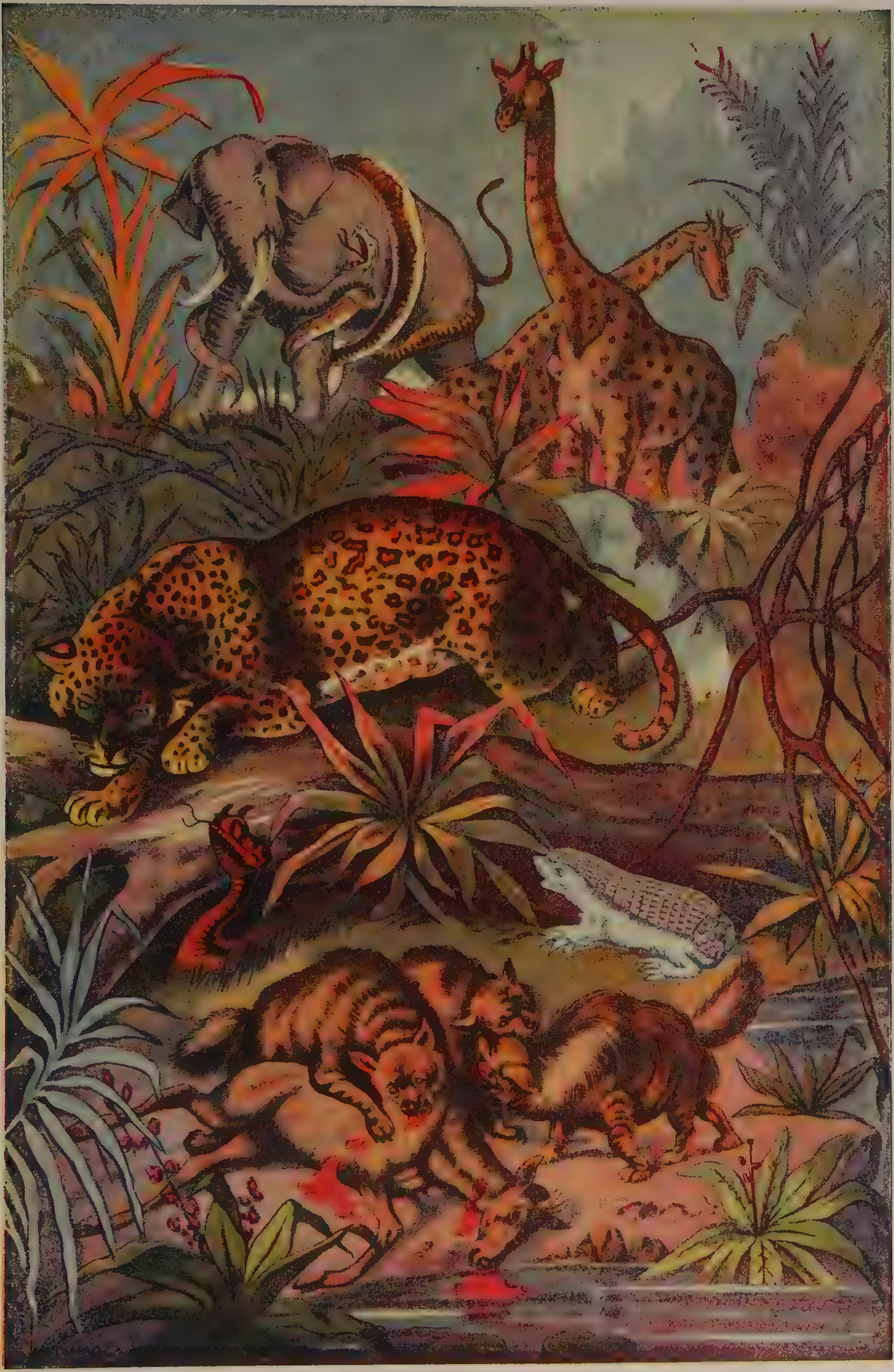


ARCHAEOPTERYX.

I. Animal Life.
  a. Form and structure.
  b. Reproduction.
  c. Embryology and growth.
  d. Habit and instinct.
  e. Distribution and migration.
  f. Relationship.
    1. To other animals.
    2. To their environments.
II. Extinct Animals.
  1. Birds—Archaeopteryx, dinornis, dodo, etc.
  2. Reptiles—Dinosauria, ichthyosaurus, pterodactyl, etc.
  3. Crustaceans, fishes, insects.
  4. Mammals—Dinotherium, mammoth, mastodon, etc.
III. Classification of Living Forms.
  1. Vertebrata, or Vertebrates.
    A. Origin of name.
    B. Description.
      a. Skeleton.
      b. Spinal cord.
      c. Lungs.
      d. Heart.
      e. Stomach.
      f. Brain, etc.
    C. Functions.
      a. Digestion.
      b. Secretion (Glands).
      c. Respiration.
      d. Circulation.
      e. Locomotion.

    D. Protection of body—Skin, hair, scales, feathers, etc.
    E. Examples—Amphibians, birds, mammals, reptiles, etc.

2. Arthropoda, or Articulates.
   - A. Nervous system—Well developed.
   - B. Eyes—Simple or compound.
   - C. Parasitic—Some species.
   - D. Reproduction—By eggs only.
   - E. Divisions—Arachnida, crustacea, and antennata.
   - F. Examples—Lobsters, spiders, cockroaches, butterflies, flies, bees, and insects.
3. Coelenterata, or Hollow-Bodied
   - A. Organism—Simple.
   - B. Body cavity and circulatory system not distinctly separate.
   - C. Food enters through mouth, passing into a system of chambers or tubes.
   - D. Tentacles—Organs of touch, used as hands and fingers.
   - E. Home—Sea (Mostly) and in fresh water.
   - F. Types.
     - a. True swimmers—Jellyfish.
     - b. Cylindrical, fastened to some object—Corals, sea anemones, hydroids, etc.
4. Protozoa, or One-Celled.
   - A. Minute, microscopic, invertebrate, simple, structureless organism of jellylike substance.
   - B. Found in fresh or salt waters.
   - C. Some live in moist earth or as parasites.
   - D. Assimilate food into their protoplasmic being.
   - E. Forms mostly invisible to the naked eye.
5. Echinodermata, or Radiates.
   - A. Third from the lowest division. (So classed by some naturalists.)
   - B. Body—Five parts radiating from central axis.
   - C. External skeleton—Calcareous, leathery, or covered with spines.
   - D. Alimentary canal—Distinct from body, protected by skeleton.
   - E. Nervous system—Radiate.
   - F. About 3,000 living species—All marine.
   - G. Seven divisions.
     - a. Sea cucumbers.
     - b. Sea urchins.
     - c. Brittle stars.
     - d. Starfishes.
     - e. Cystoids.
     - f. Pentremites.
6. Mollusca, or Shellfish.
   - A. Unsegmented, bilateral body, four nerve cords.
   - B. Supplied with shells, or muscular sac, or body is quite naked and unprotected.
   - C. Shellfish—Those with shells.
     - a. Univalves.
     - b. Bivalves.
     - c. Multivalves.
   - D. Kinds—Nautilus, oyster, clam, slug, snail, cockle, etc.
   - E. Acephala—Without a head; clams, oysters, mussels.
   - F. Cephalopods—Head-footed; nautilus, octopus, cuttlefish.
   - G. Number of species.
7. Vermes, or Worms.
   - A. Low form of animal life.
   - B. Bodies—Elongate, flattened, or cylindrical.
   - C. Structure—Segments, head, tail, surfaces, nervous system, heart, body cavity.
   - D. Species—Numerous, but of same characteristics.
   - E. Entozoa—Forms found in intestines of human body, especially children.



(Method Book Opp. **210**)

ANIMALS SEEN IN ZOOLOGICAL GARDENS.

Elephant attacked by Boa Constrictor.

Giraffes.

Panther of Africa.

Serpent.

Ant-eater.

Hyenas feeding on a species of Antelope.

Questions in Zoölogy.

Give the derivation of the word zoölogy. 3225.

What does this study embrace? Define each department.

To what classes of animal life did Solomon refer? Job? Jeremiah?

Of what do ornithology, herpetology, and arachnology treat?

Of what genus is man? Tell of his creation.

To which is animal intelligence due—instinct or reason? 105.

Define sense, nucleus, segment, parasite, protoplasm.

Which of the domestic animals are the most useful to man for (a) food, (b) clothing, and (c) beasts of burden?

Why do animals migrate? Name ten migratory birds.

What is meant by the following expressions: cold-blooded, ruminant, natural selection, and survival of the fittest?

Which class is of the lowest division of animals?

How has nature provided for the warmth and safety of wild animals?

Explain the habits of eating among carnivorous animals.

Which animal can go longest without drinking? Why?

Define the modern theory of embryology. 910.

Describe the functions of digestion and secretion.

What is microscopic zoölogy and why is it so named?

Why do some animals become extinct? Name five extinct species.

Related Subjects.

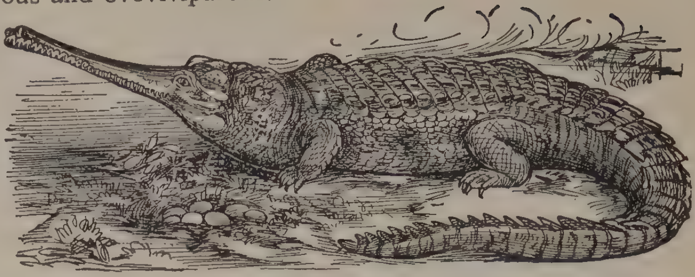
Acclimatization.
Amoeba.
Amphibia.
Anatomy.
Animal.
Animal Intelligence.
Arachnida.
Biology.
Birds.
Bone.
Carnivora.
Cell.
Cephalopoda.
Crinoidea.
Crustacea.
Dinosauria.
Egg.
Embryology.
Evolution.
Fauna.
Feather.
Fish.
Foraminifera.
Genus.
Hair.
Hoof.
Hybrid.
Infusoria.
Insects.
Jellyfish.
Longevity.
Mammalia.
Marsupialia.
Medusa.
Metamorphosis.
Microscope.
Mollusca.
Myriapoda.
Nautilus.
Parasites.
Polyp.
Protoplasm.
Protozoa.
Reptiles.
Rodentia.
Sea Urchin.
Species.
Spontaneous Generation.
Starfish.
Ungulata.
Vertebrates.
Worm.

Let cavilers deny
That brutes have reason; sure 'tis something more,
'Tis heaven directs, and stratagems inspire
Beyond the short extent of human thought.
—*Somerville.*

The heart is hard in nature and unfit
For human fellowship, as being void
Of sympathy, and therefore dead alike
To love and friendship both, that is not pleased
With sight of animals enjoying life,
Nor feels their happiness augment his own.
—*Cowper.*

Reptiles.

I. Species—2,000.
II. Class—Cold-blooded, air-breathing vertebrates.
  a. Oviparous and ovoviviparous.
III. Body — Elongated.
  1. Tail.
  2. Skin.
  3. Limbs.
IV. Difference between.
  1. Amphibians.
  2. Birds.



GANGES GAVIAL.

V. Orders.
  1. Number—Ten (Six now extinct).
  2. Four living orders.
    A. Lacertilia—Lizards, chameleons, blindworms.
    B. Crocodilia—Crocodiles, alligators, gavials.
    C. Ophidia—Snakes.
    D. Chelonia—Turtles and tortoises.
VI. Food—Flesh, seaweed, insects, bugs, vegetables, flies, etc. (Larger ones often feed on smaller reptiles).
VII. Homes.
  1. Warm and tropical climates.
  2. In or near marshes, swamps, and larger bodies of water.
VIII. History.
  1. Antedate the Permian period.
  2. More numerous in earlier ages.
IX. Uses.
  1. Food.
  2. Destroyers of insects, flies, bugs, carrion, etc.
  3. Skins—Leather (Shoes, purses, etc.).
  4. Shells—Ornaments.
  5. Pets.
  6. Oil.
X. Kinds.
  1. Tortoise.
  2. Turtle.
  3. Chameleon.
  4. Gecho.
  5. Gavial.
  6. Crocodile.
  7. Alligator.
  8. Lizard.
  9. Snake.
  10. Iguana, etc.

Questions on Reptiles.

Distinguish between amphibians and birds. 2397.

Name the four orders of reptiles now living. Give a list of the most common species.

With what safeguard from destruction has nature provided the reptiles?

What are the largest living reptiles?

State a peculiarity about the skin of snakes.

What is the Gila monster and what is said of its bite? 1140.

Tell about the size and hatching of crocodile and alligator eggs.

By what people were crocodiles formerly held sacred?

What reptiles are found in Canada?

Name three uses of alligator skins.

What classes of snakes are common to your neighborhood?

What is said about the chameleon changing its color of skin?

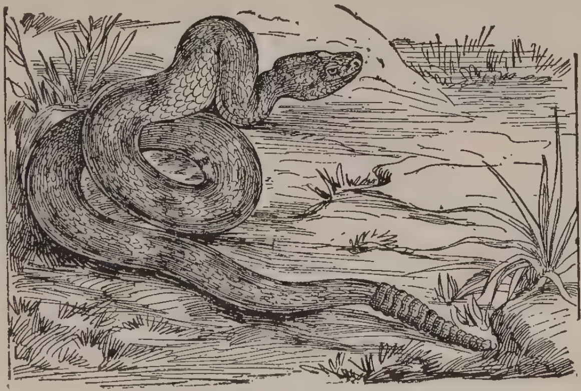
Of what value are toads in a garden or hothouse?

Snakes.

I. DESCRIPTION.
1. Nearest relative—Lizard.
2. Body.
   A. Elongated and cylindrical.
   B. Covering—Horny scales, lapping folds.
   C. Skin—Thin; shed at least once a year.
   D. Ribs—Sometimes hundreds of pairs.
      a. Give form to body.
      b. Aid in respiration.
      c. Organ of locomotion.
   E. Flesh—White and chickenlike; considered wholesome by some.
   F. Eyes—Small, unprotected by lids; sight feeble.
   G. Ears—Internal ear only; hear well.
   H. Nostrils—Two; keen sense of smell.
   I. Tongue—Forked.
   J. Fangs and poisonous glands.
3. Eggs.
   A. Number.
   B. Places of deposit.
   C. Shell.
   D. Incubation.
4. Food.
   A. Insects.
   B. Birds.
   C. Reptiles.
   D. Mice.
   E. Monkeys.
   F. Small quadrupeds.
   G. Fish.
   H. Eggs, etc.

II. SPECIES—From 1,500 to 1,800.
1. Largest and most numerous in tropical regions.
2. Wet regions—Boa, python, etc.
3. Arid districts—Viper, adder, rattlesnake, etc.

III. GENERAL CLASSES.
1. Burrowing snakes.
   A. Live under surface.
   B. Feed on invertebrate animals.
   C. Are most poisonous.
2. Tree snakes.
   A. Live mostly in trees.
   B. Very poisonous.


PRAIRIE RATTLESNAKE.

   C. Bodies green and slender, or color of tree.
   D. Feed on insects and animals.
3. Ground snakes.
   A. Remain mostly on ground.
   B. Live in burrows made by other animals.
   C. Few are poisonous.
4. Fresh-water snakes.
   A. Good swimmers.
   B. Not poisonous.
   C. Feed on frogs, fish, and aquatics.
5. Sea snakes.
   A. Generally poisonous.
   B. Rudder-shaped tail.
   C. Unable to move on land.

IV. CHARACTERISTICS.

1. Mostly timid and harmless.
2. Vocal utterance is only a hissing sound.
3. Are affected by musical sounds.
4. Some bodies so dilate as to enable serpents to swallow prey much larger than themselves.
5. When large prey is devoured the snake lies dormant until the food is somewhat digested.
6. Snakes aid farmers by destroying mice, locusts, gophers, grasshoppers, etc.
7. They may be trained by professionals called *snake charmers.*

V. KINDS.

1. Adder—Only poisonous snake in Great Britain.
2. Asp—Native to Egypt and Libya.
3. Boa—Large American serpent.
4. Anaconda, or Water Boa—Skins used for bags and shoes.
5. Garter, or Ribbon Snake—Small, harmless serpent.
6. Rattlesnake—One of the most deadly poisonous.
7. Viper—Resembles rattlesnake, native to Old World.

Questions on Snakes.

Mention and describe the five general classes of snakes. 2664.

How do poisonous snakes differ from others?

Of what use are serpents? Can they be trained?

Upon which sense do snakes rely quite largely for their prey?

Explain the shedding of the skin and the structure of the fang.

Describe the formation of the rattles of the rattlesnake.

Why is the puff adder so named? The garter snake? The rattlesnake?

By whom is the cobra de capello held sacred? What is the rate of fatalities caused by its bite?

Relate the fable of Apollo slaying the python. 2342.

Which portion of Scripture refers to the asp? To the adder?

Name five kinds of snakes common to this vicinity.

With the bite of what snake did Cleopatra accomplish her suicide?

Upon what do snakes feed? Can a snake swallow a frog?

Where is the black snake, or blue racer, found? Is it poisonous?

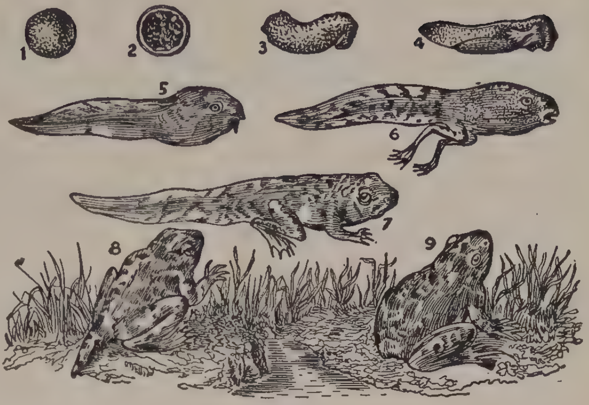
Upon the Rhine.

'Twas morn, and beautiful the mountain's brow—
  Hung with the clusters of the bending vine—
  Shone in the early light, when on the Rhine
We sailed and heard the waters round the prow
In murmurs parting, varying as we go,
  Rocks after rocks come forward and retire,
  As some gray convent wall or sunlit spire
Starts up along the banks, unfolding slow.
Here castles, like the prisons of despair,
  Frown as we pass!—there on the vineyard's side,
  The bursting sunshine pours its streaming tide;
While Grief, forgetful amid scenes so fair,
Counts not the hours of a long summer's day,
Nor heeds how fast the prospect winds away.

—*William Lisle Bowles.*

Frog and Toad.

- I. Class—Tailless amphibians.
- II. Head—Nose, mouth, teeth, tongue.
- III. Legs—Feet, toes.
- IV. Skin.
  - a. Color.
  - b. Warty in some species.
- V. Eggs.
  - 1. Composition.
  - 2. Number.
  - 3. When laid.
- VI. Stages of Development.
  - 1. Enlarging and hatching.
  - 2. Tadpole.
  - 3. Tadpole with outer gills.
  - 4. Tadpole with inner gills.
  - 5. Tadpole with two legs.
  - 6. Tadpole with four legs.
  - 7. Frog with rudimentary tail.
  - 8. Adult frog or toad.
- VII. Breathing and Movements.
- VIII. 1. Frogs—Common, bull, wood frogs.
  - 2. Toad—Natterjack, common, Surinam toads.
- IX. Value.
  - 1. Food—Legs only.
  - 2. Insect destroyers.
- X. Nativity of Frogs and Toads.



METAMORPHOSIS OF THE FROG.

1, egg; 2, egg partly incubated; 3, newly hatched tadpole; 4 tadpole with gills; 5, outside gills replaced by internal ones; 6, tadpole with hind limbs; 7, tadpole with four limbs; 8, tadpole with rudimental tail; 9, adult frog.

> I had rather be a toad,
> And live upon the vapor of a dungeon,
> Than keep a corner in the thing I love,
> For others' uses.
> —*Shakespeare.*

Questions on Frogs and Toads.

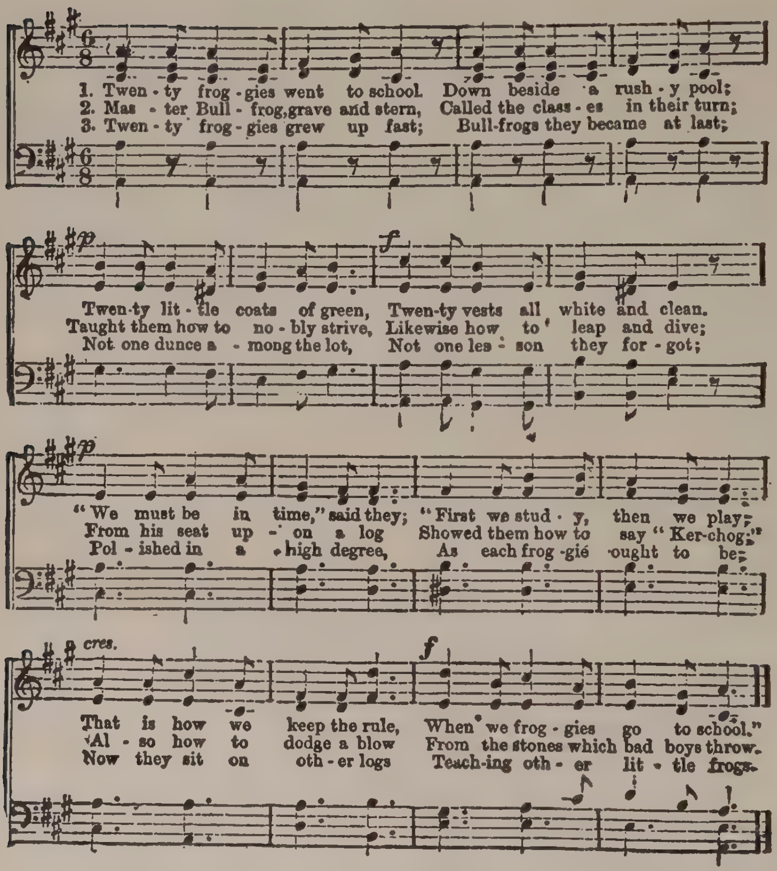
To which class of reptiles do frogs and toads belong?
Explain the structure of the tongue in these reptiles.
Describe the appearance of an adult frog. 1073.
Name the different stages of development.
When are frogs said to "live on their tails"?
Do they live in water entirely? If not, why not?
Which are able to swim better, frogs or toads? Why?
How many eggs are usually laid in a season by frogs?
What sounds are made by frogs and toads?
What is the name of the largest species of frogs?
In what respect do frogs resemble toads? How do they differ?
Learn the poem, "Twenty Froggies Went to School."

Frogs at School.

Twenty froggies went to school
Down beside a rushy pool;
Twenty little coats of green,
Twenty vests all white and clean.
"We must be in time," said they;
"First we study, then we play;
That is how we keep the rule
When we froggies go to school."

Master Bullfrog, grave and stern,
Called the classes in their turn;
Taught them how to nobly strive,
Likewise how to leap and dive;
From his seat upon a log
Showed them how to say "Ker-chog";
Also how to dodge a blow
From the stones which bad boys throw.

Twenty froggies grew up fast;
Bullfrogs they became at last;
Not one dunce among the lot,
Not one lesson they forgot;
Polished in a high degree,
As each froggie ought to be;
Now they sit on other logs
Teaching other little frogs.


1. Twen-ty frog-gies went to school. Down beside a rush-y pool;
2. Mas-ter Bull-frog, grave and stern, Called the class-es in their turn;
3. Twen-ty frog-gies grew up fast; Bull-frogs they became at last;
p
Twen-ty lit-tle coats of green, Twen-ty vests all white and clean.
Taught them how to no-bly strive, Likewise how to leap and dive;
Not one dunce a-mong the lot, Not one les-son they for-got;
f
p
"We must be in time," said they; "First we stud-y, then we play;
From his seat up-on a log Showed them how to say "Ker-chog;"
Pol-ished in a high degree, As each frog-gie ought to be;
cres.
That is how we keep the rule, When we frog-gies go to school."
Al-so how to dodge a blow From the stones which bad boys throw.
Now they sit on oth-er logs Teach-ing oth-er lit-tle frogs.
f

Angling.

The pleasant'st angling is to see the fish
Cut with her golden oars the silver stream,
And greedily devour the treacherous bait.
—*Shakespeare.*

Tortoise.

I. Class—Reptiles.

II. Homes—In marshes, on dry land, in water.

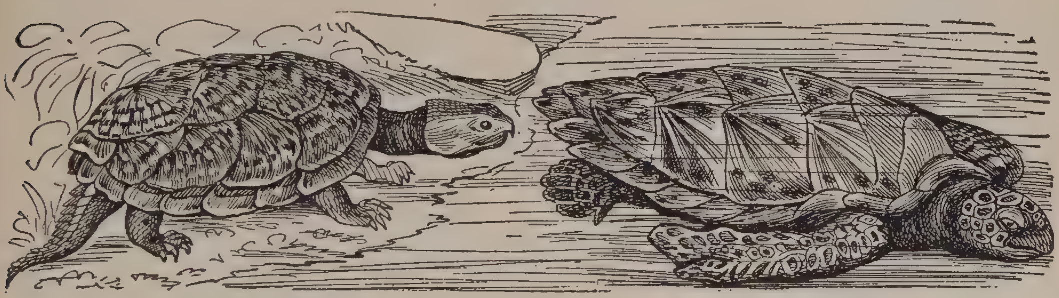
III. Description.
  1. Skeleton.
    A. Carapace—Upper part.
    B. Plastron—Lower part.
  2. Size and weight.
  3. Age—Sometimes 100 years.

IV. Eggs.
  1. Number.
  2. Where deposited.
  3. Hatching.

V. Habits.
  1. Protrudes head, legs, and tail when walking or swimming.
  2. Draws them in while resting.
  3. Closes plates, or bony shell, tightly for protection in danger.

VI. Species.
  1. Salt-marsh terrapin—Atlantic coast of North America.
  2. Green turtle—West Indies and Gulf of Mexico.
  3. Loggerhead—Atlantic coast of America and Europe.
  4. Hawksbill—Warmer parts of America.
  5. Snapping turtle—Florida and New Brunswick.

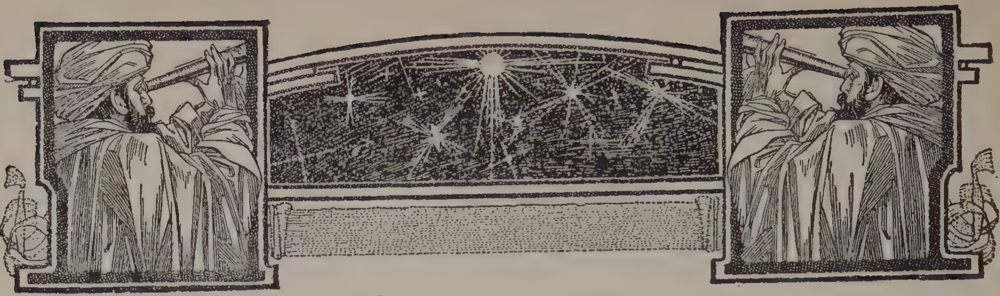
VII. Use.
  1. Article of food.
  2. Shell—Ornamental work, combs, toilet boxes, etc.



GREEN TURTLE. TORTOISE.

Questions on the Tortoise.

Describe the skeleton of the tortoise. 2899.
Of what is the carapace formed? The plastron?
What means of protection does the tortoise use when endangered?
How are the eggs cared for during incubation?
What can you say of the largest tortoises?
Which move with greater speed, land or sea tortoises?
Name and describe several species. Which is noted for its delicate flesh?
From which species is the tortoise shell of commerce obtained?
Name some species of tortoises common to North America.
Are these reptiles of economic value?
Relate the story of *The Tortoise and the Hare.*



Astronomy

> He telleth the number of the stars; He calleth them all by their names.—*Psalm 147, 4.*

ASTRONOMY, the most ancient of the sciences, treats of the phenomena of the heavenly bodies. It may be studied by departments, or branches, but these overlap each other to a large extent. However, they should be observed in a consecutive order.

The student is first referred to the article entitled ASTRONOMY, which introduces the subject by definitions and information of a general nature. The next step is to read the general articles in the order in which the science is generally subdivided. These include principally SOLAR SYSTEM, PLANETS, SATELLITES, TIME, STARS, COMET, NEBULA, CONSTELLATIONS, etc. With these should be correlated the biographies and achievements of famous astronomers.

This work of general reference will be found very helpful—in fact, indispensable—in the study of astronomical phenomena. Consult it for information on *Day, Night, Seasons, Tides,* and many related topics. The helpful information, clearly classified as it is in this work, adds interest to this ever-interesting science.

Outline for Study.

I. ASTRONOMY AS A SCIENCE.
    1. Relation to other sciences.
    2. Old and ancestral.
II. HISTORY.
    1. Assyria.
    2. Hindu.
    3. Egyptian.
    4. Chaldaea.
    5. Greece.
    6. China.
        a. Peculiar laws.
        b. Superstitious ideas of eclipse.
III. VALUE.
    1. Fixes disputed dates.
    2. Helped in making calendar.
    3. Aided navigation.
    4. Gave knowledge of exact size of earth.
    5. Enabled making of proper maps of continents and oceans.
    6. Aids materially in general surveying.
    7. Determines exact units of time.
IV. ASTRONOMERS.
    1. Thales.
        Founder of the science.
        Date and discoveries.
        Teaching.

2. Pythagoras.
    Teaching.
    Demonstration.
3. Hipparchus.
    Beginner of history proper.
    Date and nativity.
    Charts of heavens.
4 Ptolemy.
    Erroneous teaching.
5. Copernicus.
    Date.
    System.
6. Kepler.
    Laws of.
7. Galileo.
    Telescope.
8. Newton.
    Gravitation.
9. Laplace.
    Satellites of Jupiter.
    Rings of Saturn.
10. Donati, Brahe, Halley, Herschel, Yerkes, etc.

V. GENERAL SUBJECTS.
1. Apsides.
2. Solar system.
    a. Sun—Center of our system.
    b. Major planets—Satellites.
    c. Minor planets, or asteroids, and comets.
    d. Meteoroids—Furnish zodiacal light.
    e. Rings of Saturn.
    f. Nebular hypothesis.
    g. Solar phenomena.
        1. Records.
        2. Largest spots.
        3. Periodical variations.
        4. Appearances.
        5. Influences.
    h. Spectrum.
        1. Analysis.
        2. Spectroscope.
        3. Light.
        4. Rainbow.

DONATI'S COMET.

3. Moon.
    a. Comparative size and weight.
    b. Light reflected from sun.
    c. Changes or phases.
    d. Effect on tides.
4. Planets.
    a. Primary—Planets proper.
        1. Inferior—Mercury and Venus.
        2. Superior or major—Mars, Jupiter, Saturn, Uranus, Neptune.
        3. Minor—Number and size.
        4. Orbits of heavenly bodies.
        5. Symbols.
            a. Number of.
            b. Origin and signification.
5. Stars.
    a. Constellations.
        1. Magnitude.
        2. Centaur.
        3. Milky Way.
        4. Zodiac.
            a. Signs of.
        5. Cassiopeia.
        6. Orion.
        7. Ursa.
            a. Major.
            b. Minor.
        8. Periodical or variable.
        9. Double and multiple.
6. Comets—Cause and nature of.
    a. Biela's.
    b. Donati's.
    c. Encke's.
    d. Halley's.

VI. Branches.
  1. Astronomical geography.
  2. Uranography.
  3. Sidereal astronomy.
  4. Physical astronomy.

VII. Observatories.
  1. First one—Alexandria.
  2. Arabian.
  3. Persian.
  4. European.
  5. American.
    a. United States.
    b. Canada.

VIII. Instruments.
  1. Telescope.
  2. Barometer.
  3. Chronometer.
  4. Circle.
  5. Clock.
  6. Quadrant.
  7. Sextant.
  8. Chronograph.
  9. Micrometer.

IX. Time.
  1. Year.
    a. Solar, tropical, or equinoctial.
    b. Sidereal.
    c. Common.
    d. Leap year.
    e. Civil.
    f. Lunar.
    g. Ecclesiastical.
    h. Divisions.
      1. Month.
        Average length.
        Number.
        Names and their origin.
        Lunar or synodical.
        Sidereal.
        Anomalistic.
        Solar.
        Calendar.
      2. Week.
        When instituted.
        Number of days.
        Naming of days.
      3. Day.
        Division.
        Cause.
        Kinds.
          a. Solar.
          b. Sidereal.
          c. Civil.
          d. Apparent.
          e. Astronomical.

Correlated Subjects.

Aberration.
Apogee.
Asteroid.
Astrology.
Aurora Borealis.
Calendar.
Chronograph.
Chronometer.
Circle.
Comet.
Conjunction.
Constellations.
Cycle.
Earth.
Eclipse.
Ecliptic.
Equator.
Equinox.
Gravitation.
Greenwich.
Halo.
Latitude.
Longitude.
Meridian.
Meteor.
Micrometer.
Milky Way.
Moon.
Nadir.
Nebula.
Nutation.
Observatory.
Parallax.
Perturbation.
Planets.
Pole.
Precession.
Refraction.
Satellite.
Seasons.
Sextant.
Solar System.
Spectroscope.
Stars.
Sun.
Telescope.
Tides.
Transit.
Twilight.
Year.
Zenith.
Zodiac.

Questions on Astronomy.

How does the history of astronomy compare with that of the other sciences?

What is the story of the shepherds and the stars?

Tell where the following is found: "The heavens declare the glory of God and the firmament showeth His handiwork."

Which nations studied this science centuries before the Christian era?

What was the theory of the Chinese regarding eclipses.

Who was the early founder of the science of astronomy? With whom does its history proper begin? 173.

State and explain Kepler's laws.

By whom was gravitation discovered? How is gravity modified?

Give a brief sketch of the life of Galileo.

State some uses of astronomy. Is it an exact science?

Name several branches of this science.

Prepare an article on comets. What brought Halley's name prominently before the world in recent years?

Give a list of the chief symbols used in astronomy.

What instruments are used? Describe a quadrant.

Compare the sun, moon, and earth in size and in motion.

Define ecliptic, satellite, meteor, corona, cycle, zenith.

Name the major planets in the order of size.

Distinguish between variable, temporary, and fixed stars.

Name and locate some noted observatories.

How do you account for the change of seasons? For the rainbow?

Literature.

The contemplation of celestial things will make a man both speak and think more sublimely and magnificently when he descends to human affairs.

—*Cicero.*

The smallest dust which floats upon the wind
Bears this strong impress of the Eternal mind:
In mystery round it subtile forces roll,
And gravitation binds and guides the whole.
—*Selected.*

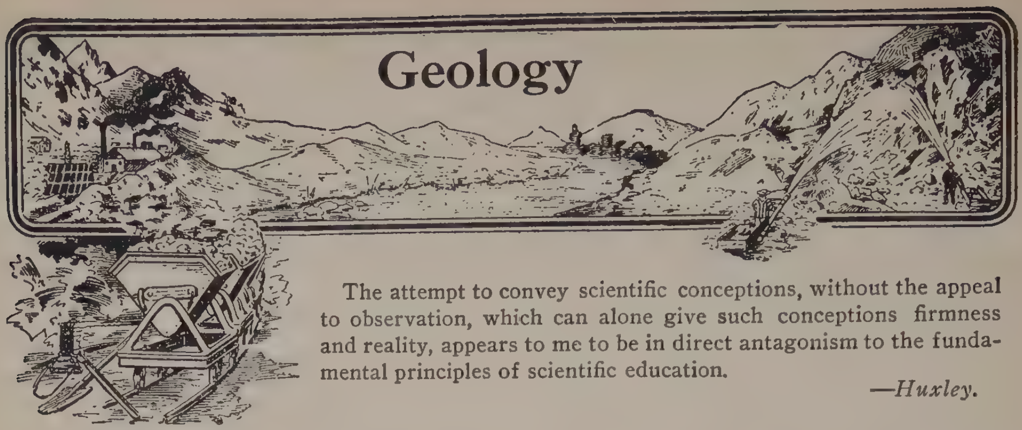
Be like the sun that pours its ray
To glad and glorify the day;
Be like the moon that sheds its light
To bless and beautify the night;
Be like the stars that sparkle on,
Altho' the sun and moon are gone;
Be like the skies that steadfast are,
Though absent sun and moon and star.
—*Selected.*

The sun is not a-bed when I
At night upon my pillow lie;
Still round the earth his way he takes,
And morning after morning makes.

While here at home at shining day,
We round the sunny garden play,
Each little Indian sleepy-head
Is being kissed and put to bed.

And when at eve I rise for tea,
Day dawns beyond the Atlantic sea;
And all the children in the West
Are getting up and being dressed.
—*Robert Louis Stevenson.*

Geology



> The attempt to convey scientific conceptions, without the appeal to observation, which can alone give such conceptions firmness and reality, appears to me to be in direct antagonism to the fundamental principles of scientific education.
>
> —*Huxley.*

THE study of geology, which investigates the structure of the earth, is treated under the general title GEOLOGY. It answers the questions—Of what materials is the earth composed? What causes produced the present arrangement of these materials? Are geological forces still active in producing changes?

This work of general reference is recommended as a reference in the study of geology. It contains hundreds of articles on mineralogical subjects, such as may be grouped under the general headings of gems, stones, fossils, and alluvial deposits. The student is referred to the following

Correlated Subjects.

Algonkian.
Archaean.
Basalt.
Bed.
Boulder.
Cambrian.
Carboniferous Age.
Chalk.
Cinnabar.
Clay.
Cleavage.
Coal.
Cretaceous Period.
Crystallography.
Dike.
Earthquake.
Eocene.
Erosion.
Erratics.
Fault.
Flood Plain.
Fossil.
Glaciers.
Igneous.
Joints.
Jurassic.
Lava.
Loess.
Mammoth.
Marl.
Metamorphic Rocks.
Mineralogy.
Mountain.
Niagara Series.
Obsidian.
Oölite.
Ordovician.
Ore.
Peat.
Pliocene.
Quaternary.
Sandstone.
Shale.
Silurian System.
Soil.
Stones, Precious.
Stratification.
Terrace.
Tertiary Period.
Triassic System.
Valley.
Volcano.

Outlines in Geology.

I. DEPARTMENT OF NATURAL SCIENCE.
    1. Treatment.
    2. Investigation.
    3. Study.
        A. Early students.
            a. Herodotus.
                1. Studied carefully formation and fertility of soil, in Egypt, and traced cause.
            b. Strabo.
                1. Greatest of early geologists.
                2. Flourished in 1st century.
                3. Discussed origin of fossils.
            c. Werner.
                1. Gave modern geology its widespread interest.
                2. Theories.
            d. Hutton.
                1. Directed attention to causes now existing in periodical formations.

        2. Held contrary view to Werner.
        3. Published *Theory of the Earth.*
  - B. Present schools.
    - a. Catastrophism.
      1. Series of creations and catastrophes.
      2. Representatives.
    - b. Uniformitarianism.
      1. Reasons of all geologic phenomena constituted by causes now in operation.
      2. Representatives.
    - c. Evolution.
      1. Similar to above.
      2. Representatives
      3. Theory regarding time required for production of the present conditions.
    - d. General theory.
      1. Interior and surface of earth once highly heated.
      2. Cooled gradually.
      3. Crust formed.
      4. Action of water and heat.
      5. Rock formations.

II. LIFE PERIODS.

1. Archaean time—Dawn of life.
   - A. Extremely high temperature.
   - B. Creation of simpler forms.
   - C. North America largely submerged.
   - D. Formation of iron.
2. Paleozoic.
   - A. Fossil remains.
     - a. Mollusks, protozoa, radiates, and articulates.
3. Silurian, or Age of Invertebrates.
   - A. Rocks under water—Consisted of limestone, sandstone, and shales.
   - B. Formed of clams, oysters, etc.
4. Devonian Age.
   - A. First vertebrate fishes.
   - B. Plants became abundant.
   - C. Appearance of vast swarms of insects.
5. Carboniferous Age.
   - A. Surface covered with gigantic fernlike and other plants.
   - B. Formation of coal beds.
   - C. Alternated elevations and subsidences.
   - D. Animals of the subkingdoms lived.
   - E. Reptiles began to appear.
6. Mesozoic time, or Age of Reptiles.
   - A. Numerous reptiles abounded.
   - B. Plants and animals began to resemble existing species.
   - C. Ichthyosaurus and plesiosaurus common.
   - D. Great birds left foot imprints as fossil remains on forming rocks.
7. Cenozoic time.
   - A. North America largely above the sea.
   - B. Abundance of fresh-water lakes.
   - C. Abundant vegetation in Arctic Zone—Redwood, magnolia, etc.
   - D. Large animals abundant in Rocky Mountains.
   - E. Glacial period.
     - a. Swept over northeastern portion of continent.
     - b. Destructive drifts and boulders prevailed.

F. Champlain period.
  a. Alternating floods and varying climates.
  b. Return of tropical climate.
  c. Gradual fall of temperature.
8. Quaternary Age.
  A. Present animals and plants appeared.
  B. Creation of man.

III. GEOLOGISTS.

Agassiz.
Buckland.
Buffon.
Cuvier.
Dana.
Darwin.
Dawson.
Geikie.
Hayden.
Hitchcock.
Huxley.
Le Conte.
Lyell.
Miller.
Murchison.
Powell.
Silliman.
Smith.
Strabo.
Tyndall.
Winchell.

Questions on Geology.

Of what does geology treat? What are fossils? **1114.**
Distinguish between geology and mineralogy.
Name some early students of geology and state the theories they advanced.
What are the three recognized schools of geology to-day?
To which school does Lyell belong? How does he support his opinions?
Explain what is meant by igneous, sedimentary, and metamorphic rocks.
Name the principal life periods. In which do we live?
How may earthquakes and volcanoes be accounted for?
Briefly describe Geological Survey.
What caused the elevations and depressions on the earth's surface?
What was the glacial period? By what other name is it known?
What is meant by Azoic and Eozoic?
Speak of the Age of Reptiles and the Carboniferous Age.

Bugle Song.

The splendor falls on castle walls
  And snowy summits old in story,
The long light shakes across the lakes,
  And the wild cataract leaps in glory.
Blow, bugle, blow! set the wild echoes flying;
Blow, bugle; answer, echoes—dying, dying, dying!

O hark, O hear! how thin and clear,
  And thinner, clearer, farther going!
O sweet and far, from cliff and scar,
  The horns of Elfland faintly blowing!
Blow! let us hear the purple glens replying:
Blow, bugle; answer, echoes—dying, dying, dying!

O love! they die in yon rich sky:
  They faint on hill, or field or river;
OUR echoes roll from soul to soul,
  And GROW forever and forever.
Blow, bugle, blow! set the wild echoes flying;
And answer, echoes, answer—dying, dying, dying!

—*Tennyson.*

Coal.

I. DESCRIPTION.
  1. Carbonaceous mineral.
  2. Appearance.
  3. Use.
  4. Composition.
    A. Carbon.
    B. Hydrogen.
    C. Oxygen.
    D. Nitrogen.
    E. Earthy impurities.
  5. Formation.
    A. Vegetable matter.
      a. Luxuriant growth accumulated.
      b. Decomposed.
      c. Compressed and chemically changed.
      d. Solidified and reduced.

II. KINDS.
  1. Anthracite—90 per cent. carbon.
    A. Burns with little flame.
    B. Much used in kilns furnaces, and by blacksmiths.
    C. Most valuable.
  2. Bituminous.
    A. Used for fuel in heating and in engines.
    B. Greatly exceeds in output.
  3. Cannel.
    A. Appearance.
    B. Flame.
    C. Used in gas making.
  4. Lignite or brown—50 per cent. carbon.
    A. Used less for manufacturing purposes.
    B. Valuable for fuel in sections where other coal is minus.
    C. Burns easily with extra draft admitted.

III. VEINS.
  1. Number—1 to 4.
  2. Thickness—2 ft. to 50 ft.
  3. Deposits.
    A. Drifts, or pockets.
    B. Measures.

IV. MINING.
  1. Differing of methods.
    A. Thickness of veins.
    B. Class of coal.
    C. Character of roof.
    D. Blasting.
    E. Long-wall work.
    F. Mining machinery.
  2. Slopes.
    A. Coal crops out at hillsides.
    B. Opening and sloping inroad made into hillside.
  3. Shaft.
    A. Perpendicular passage sunk to veins of coal many feet below.
    B. Entries driven and rooms made.
    C. Coal obtained by picking, sledging, blasting, or drilling.
    D. Brought to surface by cages.

V. History.
  1. Not known to early ancients.
  2. Used in 852 A. D. in England.
  3. Common prejudice prevented early usage.
VI. Distribution.
  1. United States.
    A. Found in 35 states and territories.
    B. Products in 29 reached commercial quantities.
    C. Leading producers.
      a. Pennsylvania.
      b. West Virginia.
      c. Illinois.
      d. Ohio.
      e. Alabama.
      f. Indiana.
      g. Colorado.
    D. Annual production and value.
  2. Canada.
    A. Annual output.
    B. Deposits.
      a. British Columbia.
      b. Nova Scotia.
      c. New Brunswick.
      d. Alberta.
  3. Great Britain.
  4. Germany.
  5. Austria-Hungary.
  6. Russia.
  7. Philippine Islands, and others.

Coal in Literature.

Sing a song of coal in a mine so deep,
Where the mighty mountain guarding watch doth keep.
Down must go the miner in the ground so damp,
Each one with his pickax and his tiny lamp.
—*Jessie L. Gaynor.*

Not many years ago men would have laughed, had they been told to dig for the rays of the sun in the darkness of the earth. But we strike a match and discover that the black heart of the coal is the treasury of sunbeams. —*Newman Smyth.*

Questions on Coal.

What is coal and of what is it composed? 609.

Explain briefly the formation of the coal beds.

Name several kinds of coal. Which is most valuable?

Which kind of coal contains the greatest per cent. of carbon? Why is lignite coal of lesser value?

What is a coal measure? State the difference between a slope and a shaft.

Illustrate coal stratum with a drawing.

At about what date was coal first used for fuel in England?

Where are the chief deposits of coal in England? What is the annual output?

State the value of the annual production of coal in the United States. Name the leading coal-producing states.

What serious objection was raised against the use of coal in early days?

Name some of the greatest coal-producing countries of the world.

Gold.

I. DESCRIPTION.

1. Precious metal.
2. Color, bright yellow.
3. Specific gravity—19.
4. Atomic weight—196.
5. Melting point—About 2282° Fahr.
6. Properties.
    - A. Ductility—Grain can be drawn into wire 500 ft. long, or same amount is sufficient to gild two miles of silver wire.
    - B. Malleability—One grain may be beaten out so as to cover 56 sq. in. (thickness, $\frac{1}{281,980}$ part of an inch).

II. CHARACTERISTICS.

1. Not acted upon by water and oxygen.
2. Not tarnished by air.
3. Not soluble by hydrochloric, nitric, or sulphuric acids.
4. Soluble in mixture of nitric and hydrochloric acids.
5. Crystallizes in cubes and other regular forms.
6. Yields aurous and auric salts.

III. KINDS.

1. Pure gold.
    - A. 24 carats fine.
    - B. Very soft.
2. Alloy.
    - A. ¼ copper and ¾ gold, usually used by jewelers.
    - B. 14 to 18 carats fine commonly used.
3. Coinage.
    - A. Standard 22 carats fine—2 parts copper and 22 parts gold.
4. Nature.
    - A. Gold and silver alloy.
    - B. Used in medicine and by dentists.

IV. WHERE FOUND.

1. In alluvial deposits (placer mining).
    - A. Small particles, called grains or nuggets.
    - B. Separated from foreign matter by washing in troughs and pans.
2. In sandstone, slate, quartzite, granite, and serpentine.
3. In fissures or quartz veins.
    - A. Mined by machinery.
    - B. Rock crushed.
    - C. Gold separated by excessive heat.
    - D. Natural gas, coal, and electricity employed as agents in smelting.
    - E. Refined by repeated subjection to heat.

V. CUPELLATION.

1. Extracted from ore by pulverizing.
2. Sulphur and arsenic set free by heating gold-bearing pyrites
3. Quantity of mercury and sodium added.
4. This amalgam heated to liberate the mercury.

VI. USE.

1. Coin.
2. Jewelry.
3. Dentistry.
4. Medicine.
5. Photography.

VII. DISTRIBUTION.
- 1. North America.
  - A. United States.
    - a. California.
    - b. Montana.
    - c. South Dakota.
    - d. Utah.
    - e. Arizona.
    - f. New Mexico, etc.
  - B. Canada.
    - a. British Columbia.
    - b. Yukon.
    - c. Saskatchewan.
  - C. Alaska—Klondike.
- 2. South America.
  - A. Peru.
  - B. Bolivia.
- 3. New Zealand.
- 4. South Africa.
- 5. Ural Mountains.

VIII. STATISTICS.
- 1. Value of world's productio since 1493.
- 2. Present annual production.
- 3. Comparative outputs.
  - a. North America.
  - b. South America.
  - c. Europe.
  - d. Asia.
  - e. Africa.
  - f. Australia.
- 4. Largest pure gold nugget.
  - a. Where found.
  - b. Date.
  - c. Weight.

Gold in Literature.

All that glistens is not gold,
Often have you heard that told;
Many a man his life hath sold
But my outside to behold.
—*Shakespeare.*

Can gold calm passion, or make reason shine?
Can we dig peace, or wisdom, from the mine?
Wisdom to gold prefer; for 'tis much less
To make our fortune than our happiness.
—*Young.*

Gold! gold! gold! gold!
Bright and yellow, hard and cold,
Molten, graven, hammer'd, and roll'd;
Heavy to get, and light to hold;
Hoarded, barter'd, bought, and sold
To the very verge of the churchyard mold;
Price of many a crime untold;
Gold! gold! gold! gold!
Good or bad a thousand fold!
How widely its agencies vary—
To save—to ruin—to curse—to bless—
As even its minted coins express,
Now stamped with the image of good Queen Bess,
And now with a bloody Mary.
—*Hood.*

Questions on Gold.

Compare the value of gold with that of other metals.
For what three things is it noted?
State some of its characteristics. 1161.
With what metals is gold alloyed?
How many carats are generally used in jewelry?
Name some gold coins now in use.
Give a list of articles of jewelry made of gold.
How is gold refined? Illustrate its malleability.
Where is this metal first mentioned in the Bible?

Tell when the gold fields were opened in the following places: California, Alaska, and Australia.

What and where is the Klondike region? 1514.
Locate the most important gold fields of United States and Canada.

Iron.

I. DESCRIPTION.
1. Metal.
2. Mixed with clay, earth, and rock.
3. Found in sea water and mineral water.
4. Essential constituent of plants and animals.
5. Pure metal—Silvery-white, very tenacious, malleable, and ductile.
6. Commercial product—Derived from ores.
   - A. Magnetite.
   - B. Hematite.
   - C. Limonite.
   - D. Siderite.
7. Compounds.
   - A. Sulphur.
   - B. Copper.
   - C. Silicon.
   - D. Carbon.
   - E. Arsenic.
   - F. Phosphorus, etc.

II. KINDS.
1. Cast iron.
   - A. Commercial iron.
   - B. Produced in blast furnace.
   - C. Contains much carbon.
   - D. Easily cast in molds.
   - E. Neither ductile nor malleable.
   - F. Pig iron.
     - a. Form of cast iron.
     - b. Heated metal run into molds called pigs.
2. Wrought iron.
   - A. Fibrous.
   - B. Ductile.
   - C. Malleable.
   - D. Produced in a puddling furnace or forge.
   - E. Quite pure.
4. Weld iron, bar iron, steel.
   - A. Compounds of iron.
   - B. Compare with others.
   - C. Can be forged, tempered, and cast.
   - D. Hardened by heating to redness and cooling quickly.

III. IRON INDUSTRY.
1. Mining—Blasting and shoveling.
2. Transportation—From mines to smelters.
3. Smelting.
   - A. Crushed by rollers.
   - B. Heated in furnaces.
   - C. Tapped.
   - D. Molded.
   - E. Cooled.
4. Manufacture.
   - 1. Improvements.
     - A. Cort.
     - B. Dalton.
     - C. Bessemer.

IV. HISTORY.
1. One of the earliest known metals.
2. Mentioned in Bible.
3. Represented in Egyptian sepulcher.
4. Its discovery at Mount Ida.
5. Deposits of India, Italy, Britain, and Spain.
6. Discovery of deposits in North Carolina.
7. Establishing and use of blast furnaces.

V. ITEMS OF INTEREST.
1. United States ranks first in production of pig iron.
2. Two-thirds of iron ore is obtained from Lake Superior region.
3. Pennsylvania leads in the manufacture of iron products.
4. Minnesota ranks first in the output of iron.
5. First blast furnace operated under direction of William Penn.
6. First rolling mill established in 1817, at Plumstock, Pa.

VI. Production and Distribution
- 1. World's production in 1908.
  - A. United States.
  - B. Germany.
  - C. Great Britain.
  - D. France.
  - E. Canada.
  - F. Other countries.

VII. Uses.
- 1. Machinery.
- 2. Utensils.
- 3. Tools.
- 4. Railroad ties, rails, spikes, etc.
- 5. Bridges.
- 6. Castings.
- 7. Stoves.
- 8. Framework of buildings.
- 9. Wire and nails.
- 10. Medicine, etc.

Questions on Iron.

Name four classes of iron. 1410.

With what metals is iron combined and why?

Describe cast iron. What is pig iron?

What medicinal properties has iron?

Name the leading iron-producing states. In what does Pennsylvania lead?

Why is the iron industry of the Southern States making rapid progress?

Describe the Catalan furnace.

What materials are used for fuel for smelting?

Who is spoken of as "instructor of every artificer of brass and iron"?

How do Canada and the United States rank among the nations in the production of iron?

Name ten things in your home made of some form of iron.

Explain what is meant by the *Iron Age.*

What useful improvements in the iron industry were made by Cort?

Who discovered the method of converting crude iron into steel?

Old Ironsides.

Ay, tear her tattered ensign down!
  Long has it waved on high,
And many an eye has danced to see
  That banner in the sky;
Beneath it rang the battle-shout,
  And burst the cannon's roar;—
The meteor of the ocean air
  Shall sweep the clouds no more!

Her deck, once red with heroes' blood,
  Where knelt the vanquished foe,
When winds were hurrying o'er the flood,
  And waves were white below,
No more shall feel the victor's tread,
  Or know the conquered knee;—
The harpies of the shore shall pluck
  The eagles of the sea!

Oh, better that her shattered hulk
  Should sink beneath the wave;
Her thunders shook the mighty deep,
  And there should be her grave;
Nail to the mast her holy flag,
  Set every threadbare sail,
And give her to the god of storms—
  The lightning and the gale!

—*Holmes.*

Asbestos.

I. DESCRIPTION.
  1. Composition—Magnesia, lime, iron-oxide.
  2. Silky mineral fiber.
  3. Will not burn.
  4. Some flexible and elastic; others brittle and stiff.

II. DEPOSITS.
  1. All grand divisions.
    A. United States.
      a. Georgia.
        Sall Mountain—Has ledge 800 feet long, 250 feet wide, and of great depth.
      b. Montana.
    B. Canada.
      a. Pure white.
      b. Long fibers.
      c. Can be spun into yarn; made into rope.

III. CLASSES.
  1. True asbestos.
    A. Rock-cork—Soft, light, and easily cut.
    B. Rock-leather.
    C. Rock-wood.
  2. Chrysolite.

IV. USES.
  1. Modern.
    A. Asbestos cement.
    B. Quick-setting plaster.
    C. Fireproof roofing, stage curtains, firemen's clothing.
    D. Deadening walls and floors.
    E. Sectional coverings for pipes and boilers.
    F. Insulator in electric mechanisms.
    G. Fireproof coat in paint.
  2. Ancient.
    A. Absorbent in lamp wicking.
    B. Embalming robes for dead bodies, ashes being thus preserved when body is placed on the funeral pile for cremation.

Questions on Asbestos.

Is asbestos an element? Give reasons for your answer.

What is the most valuable property of asbestos?

State several uses of it.

Where is it found most extensively? Compare the American product with that of other parts of the world.

What is known of the deposits in Canada? Name two articles of manufacture made from the Canadian product.

Why is it especially beneficial in making curtains for theaters?

How was this mineral used by the ancients?

What do you know of the extent of the use of asbestos?

> Nought in this life without much toil is bought.
> In this world of ours,
> The path to what we want ne'er runs on flowers.
>
> —*Horace.*

Alum.

I. HISTORY.
II. CLASSES.
  1. Potassium alum.
  2. Ammonium alum.
  3. Sodium alum.
III. DESCRIPTION.
  1. Double salt.
  2. Constituents.
    A. Alumnia.
    B. Alkali.
      a. With potash.
      b. With ammonia.
      c. With soda.
    C. Sulphuric acid.
    D. Water.
  3. White and stringent.
IV. KINDS.
  1. Natural.
    A. From alum ore.
    B. Found in lower coal measures.
  2. Manufactured.
    A. For commerce.
    B. Burnt alum.
V. USE.
  1. Preparing skins.
  2. Mordant in calico printing.
  3. Glazing paper.
  4. Bread and pastry.
  5. Clarifying liquors.
  6. Harden tallow, fats, etc.
  7. Baking powders.
  8. Medicine.
  9. Arts.

Questions on Alum.

How long has alum been manufactured?

Where was it known and manufactured in the 7th century?

What is the effect of alum applied to the flesh? Would you consider it healthful to use it in whitening bread?

What is burnt alum and for what is it used?

Name the three general classes. Upon what do they depend?

What useful property has it in dyeing?

In what is it used to harden?

Break, Break, Break.

Break, break, break,
On thy cold gray stones, O sea!
And I would that my tongue could utter
The thoughts that arise in me.

O well for the fisherman's boy,
That he shouts with his sister at play!
O well for the sailor lad,
That he sings in his boat on the bay!

And the stately ships go on
To their haven under the hill;
But O for the touch of a vanished hand,
And the sound of a voice that is still!

Break, break, break,
At the foot of thy crags, O sea!
But the tender grace of a day that is dead
Will never come back to me.

—*Tennyson.*

Aluminium.

I. DISCOVERY.
II. DESCRIPTION.
  1. Metal.
    A. Qualities.
      a. Ductile.
      b. Malleable.
      c. Sonorous.
    B. Weight.
    C. Color.
    D. With what found.
      a. Clay.
      b. Mica.
      c. Spar, etc.
III. MANUFACTURE.
  1. By machinery.
  2. Power employed—Electricity.
  3. Intense heat required.
  4. Form.
    A. Drawn into fine wire thread.
    B. Rolled into thin foil.
  5. Alloyed with copper, steel, etc.
IV. USE.
  1. Ornaments.
  2. Scientific instruments.
  3. Bells.
  4. Bicycles.
  5. Automobiles.
  6. Airships.
  7. Bath tubs.
  8. Torpedo boats.
  9. Stoves.

Questions on Aluminium.

What is aluminium? Should it be classed with the elements?

State a peculiar fact about this metal.

Why has the extensive use of this metal been so recent?

For what articles is it especially adapted, owing to the fact that it does not rust?

How is aluminium made available for use? With what is it alloyed?

What are some of the most recent products made from this metal?

Give two reasons for using aluminium in the manufacture of stoves, bath tubs, airships, and automobiles.

What two reasons can you give for the constant increase in its use?

The Isles of the Blest.

The Isles of the Blest, they say,
  The Isles of the Blest,
Are peaceful and happy, by night and by day,
  Far away in the glorious West.

They need not the moon in that land of delight,
  They need not the pale, pale star;
The sun is bright, by day and night,
  Where the souls of the blessed are.

They till not the ground, they plow not the wave,
  They labor not, never! oh, never!
Not a tear do they shed, not a sigh do they heave,
  They are happy, for ever and ever!

—*Pindar.*

Salt.

I. DEFINITION.

II. USES.

1. Preserver of food.
2. Seasoning for food.
3. Uses in chemical and industrial arts.
4. Mordant.
5. For glazing coarse pottery.
6. Giving hardness to soap.
7. Imparting clearness to glass.

III. SOURCES.

1. Ocean water and saline lakes (3%).
2. Salt rocks.
3. Springs and wells.

IV. HOW OBTAINED IN MARKET.

1. By evaporating or freezing water from the ocean.
2. By mining in beds of rock salt.

V. IN WHAT COUNTRIES FOUND.

1. Michigan (Saginaw Bay).
2. Avery Island, La. (2,000 ft. thick).
3. Nevada and California.
4. Canada (Chiefly in Ontario).
5. Germany (In Brunswick and Hanover).
6. Russia in Europe (Worked since 12th century).
   a. Crimea.
   b. Caucasus.
7. China.
8. Persia.
9. Sahara.
10. Various parts of Australia and other arid countries.

VI. ANNUAL OUTPUT.

1. United States, 3,150,170 tons (Exceeds all others).
2. Canada, 80,000 barrels.

Questions on Salt.

What per cent. of ocean water is salt, by weight? 2507.

What can you say of it as an essential in foods for animals?

What are the chief uses of salt?

Give three sources by which salt is obtained.

What can you say of the salt deposit in the Avery Island region of Louisiana?

What is the annual output of salt in tons for Canada?

What states rank first in the production of salt?

How many pounds of salt for every hundred pounds of water in the Dead Sea? 764.

Why is the Dead Sea so salty?

Where is the Salton Sea? 2509.

Speak of the largest salt lake in Turkey; in the United States.

> Why dost thou shun the salt? that sacred pledge,
> Which once partaken blunts the sabre's edge,
> Makes even contending tribes in peace unite,
> And hated hosts seem brethren to the sight.
>
> —*Byron.*

Minerals and Mining.

The mining industry is one of the great enterprises. Information on the minerals is found under their appropriate titles, as *Coal, Copper, Diamond, Gold, Iron, Silver,* etc. The student is likewise referred to the subhead *Minerals* under the states, provinces, and leading countries of the world.

MINERS GOING TO WORK.

I. MINING REGIONS.

- A.
  - 1. Colorado, Ontario, Pennsylvania, etc.
  - 2. United States.
  - 3. Canada, Mexico, and Central America.
  - 4. Map drawing. 1. Outline maps. 2. Chalk modeled maps.
    - a. Each country.
    - b. Locate mining regions.
    - c. Locate mining centers.
  - 5. Nature and surface of the country in mining regions.
  - 6. Minerals that are mined in each region.
  - 7. Amount produced.
  - 8. Incidentally locate other regions, as agricultural, manufacturing, etc.
- B.
  - 1. Study of South America, Europe, Asia, Africa, and Australia, by outline above.
  - 2. Compare each continent with the other as to the extent of the mining regions, nature and kind of minerals, and the amount produced or mined.

II. MINERALS.

- A.
  - 1. Coal.
  - 2. Iron.
  - 3. Lead.
  - 4. Zinc.
  - 5. Copper.
  - 6. Gold.
  - 7. Silver.
  - 8. Petroleum.
  - 9. Stone.
  - 10. Diamond.
- B. Outline for study of any mineral.
  - 1. Nature and composition.
  - 2. Color and weight.
  - 3. Where found.
  - 4. How obtained.
    - a. Process of mining.
      - 1. Sinking the shaft.
      - 2. Digging for the mineral.
      - 3. Separating it from dirt and other material.
      - 4. Taking it out of mine.
    - b. Preparing mineral for use.
      - 1. Clearing.
      - 2. Smelting.
      - 3. Molding.
      - 4. Marketing and shipping.
      - 5. Stamping.

      Give the process in a general way.

      Suggestion: Some minerals are found in the pure state and do not have to be taken through all the above processes.
  - 5. Use.
  - 6. Location of mines.
    - a. In our own country.
    - b. In other countries.
  - 7. Comparative amounts of production.
    - a. In this country.
    - b. In other countries.

    Suggestion: Use specimens of minerals, if possible.

Questions on Minerals and Mining.

Of what does the art of mining consist? 1795.

When and by whom was the first exhaustive treatise on mining published?

What inventions have greatly facilitated the mining industry?

Give a list of the most important minerals.

Name some minerals which occur in seams or strata. Which occur in lodes?

For what mineral is each of the following noted: California, Nevada, Pennsylvania, Michigan, Mexico, Ontario, and Yukon?

Where are the most valuable diamond mines? How are diamonds obtained?

Explain how tin ore is prepared for the market.

How is petroleum, or mineral oil, secured? Name some of its products.

Explain how prospecting is done. How are shafts sunk?

Explain the long-wall method of mining coal.

Name some agencies for blasting. Which is used most extensively?

Name and locate some noted schools of mining.

State some benefits of labor unions in connection with the mining industry.

How may mineral titles be secured?

Name the four lines of study into which mining is divided.

Locate the chief mineral fields of Europe. Of South America. Of Australia.

Flint and Steel.

The Flint and Steel—the story goes—
  Old friends by natural relation,
Fell out, one day, and like two foes,
  Indulged in bitter altercation.

"I'm weary," said the angry Flint,
  "Of being beat: 'tis past concealing;
Your conduct (witness many a dint
  Upon my sides!) is most unfeeling.

"And what reward have I to show?
  What sort of payment do you render
To one who bears each hateful blow
  That you may blaze in transient splendor?"

"You seem to think yourself abused,"
  The Steel replied with proper spirit;
'But, say, unless with me you're used,
  What praise of service do you merit?

"Your worth, as any one may see
  (For all your feeling of defiance),
Is simply nought, unless with me
  You keep your natural alliance."

"True!" said the Flint; "but there's no call,
  Whate'er my worth, for you to flout it;
My value, sir! may be but small;
  But think what yours would be without it!"

—J. G. Saxe.

Botany

I. Definition. The science that treats of plants—Their structure, the functions of their parts, and the conditions governing their growth.

II. Divisions.
  1. Structural or morphological—Dealing with plant structure.
  2. Physiological—Treating of the function and vital action of plants.
  3. Descriptive or systematic—Relating to classification and arrangement.
  4. Paleontological—Treating of fossil plants.
  5. Phanerogams—Flowering plants.
  6. Cryptogams—Flowerless plants.

III. Plants.
  1. Organs of growth.
    A. Roots and rootlets.
      a. Grow downward.
      b. Gather moisture and nutrition from soil.
    B. Stems.
      a. Grow upward.
      b. Bear leaves.
    C. Leaves.
      a. Color—Greenish or brownish.
      b. Grow mostly from upper part of stem.
      c. Differ in form and size.
      d. One side of leaf faces the sky and the other is turned toward ground.
  2. Subsistence.
    A. Water.
    B. Earth.
    C. Air.
      a. Assimilated through roots and leaves.
  3. Necessary elements.
    A. Light.
    B. Heat.
    C. Moisture.

IV. History.
  1. Not studied as long as astronomy or geography.
  2. Taught in time of King Solomon.
   Early botany students.
    A. Theophrastus—Pupil of Aristotle.
    B. Diosconides, of Asia Minor.
    C. Pliny the Elder.
    D. Otto Brunfels of Germany.
    E. Linnaeus—Swedish naturalist.
    F. Bernard Jussieu — French scholar.
    G. Darwin.

V. Classification.
  1. Annuals—Live one year.
  2. Biennials—Live two years.
  3. Perennials — Live year after year.
  4. Structure.
    A. Herbs.
    B. Undershrubs.
    C. Shrubs.
    D. Trees.
  5. Evergreen—Retain foliage the entire year.
  6. Deciduous—Shed leaves in the fall.
  7. Genus — Scientific names of plants.
  8. Species—More than 120,000.
  9. Variety—Numerous.

VI.
  1. Cryptogams.
    A. Seedless apple.
    B. Bacteria.
    C. Diatoms—Microscopic plants.
    D. Mold—Low type of growth.
    E. Rust—Fungus growth on cereals and grasses.
    F. Yeast—Fungus growth.
    G. Algae—Plants that grow in water.
    H. Lichens — Sort of fungus growth.

- I. Mosses—Several thousand species.
- J. Ferns—4,000 species.
- K. Desmids and pond scums.
- L. Liverworts.
- M. Scouring rushes.
- N. Club mosses.
- O. Fission plants.

2. Phanerogams.
    - A. Coniferae—Pine family.
        - a. Pine.
        - b. Spruce.
        - c. Hemlock.
        - d. Fir.
        - e. Larch.
        - f. Tamarack.
        - g. Cypress.
        - h. Arbor Vitae.
        - i. Cedar.
        - j. Juniper.
    - B. Angiosperms.
        - a. Monocotyledons.
            1. Cat-tail family.
            2. Grass.
            3. Sedge.
            4. Arum.
            5. Spiderwort.
            6. Pickerel weed.
            7. Rush.
            8. Liliaceae (Lily) family.
                - a. Wild oats.
                - b. Wild onion.
                - c. Common tulip.
                - d. White dog-toothed violet.
                - e. Wild hyacinth.
                - f. Star of Bethlehem.
                - g. Asparagus.
                - h. Jacob's ladder.
                - i. Lily-of-the-valley.
                - j. Wake robin.
                - k. Green briar.
            9. Amaryllis family.
                - a. Daffodil.
                - b. Star grass.
            10. Iris family.
                - a. Crocus.
                - b. Blue flag.
                - c. Fleur-de-lis.
                - d. Yellow flag.
            11. Orchis family.
        - b. Dicotyledons.
            1. Willow family.
                - a. Poplar.
                - b. Cottonwood.
                - c. Aspen.
                - d. Weeping willow.
            2. Walnut family.
                - a. Black walnut, butternut.
                - b. Hickory — Pecan, pignut.
            3. Birch family.
                - a. Hazelnut.
            4. Beech family.
                - a. Oak — Red, **black**, white, burr.
            5. Elm family.
                - a. White elm.
                - b. Slippery elm.
                - c. Hackberry.
            6. Mulberry family.
            7. Nettle family.
            8. Buckwheat family.
                - a. Sheep sorrel.
                - b. Swamp dock.
                - c. Knotgrass.
            9. Pink family.
            10. Peonia family.
                - a. Marsh marigold.
                    1. Buttercup.
                    2. Cowslip.
                - b. Wild columbine.
                - c. Blue larkspur.
                - d. Marsh clematis.
            11. Poppy family.
                - a. Dutchman's breeches.
                - b. Bleeding heart.
                - c. Bloodroot.
            12. Mustard family.
                - a. Horse-radish.
                - b. Water cress.
                - c. Shepherd's purse.
            13. Rose family.
                - a. Quince, pear, apple, haw.
                - b. Raspberry, mulberry, blackberry, dewberry, strawberry.
                - c. Wild rose, sweetbrier.
                - d. Plum, peach, cherry.
            14. Pulse family.
                - a. Honey locust.
                - b. Clover, alfalfa.
                - c. Wistaria.
                - d. Wild pea, sweet pea, peanut.
            15. Geranium family.
            16. Vine family.
                - a. Grape.
                - b. Boston ivy.
                - c. Virginia creeper.
                - d. Woodbine.
            17. Linden family — Basswood.
            18. Violet family.
            19. Begonia family.

20. Cactus family.
    a. Night-blooming cereus.
21. Primrose family.
22. Ginseng family.
23. Parsley family.
    a. Caraway.
    b. Parsnip.
    c. Carrot.
24. Dogwood family.
25. Heath family.
    a. Wild honeysuckle.
    b. Sheep laurel, trailing arbutus, Mayflower.
    c. Wild rosemary.
    d. Huckleberry, cranberry.
26. Olive family.
    a. Ash.
    b. Common lilac.
27. Gentian family.
28. Milkweed family.
29. Morning-glory family.
30. Phlox family.
31. Borage family.
    a. Common heliotrope.
    b. Bluebells.
    c. Forget-me-not.
    d. Blue thistle.
32. Verbena family.
33. Mint family.
    a. Catnip.
    b. Ground ivy.
    c. Motherwort.
    d. Garden sage.
34. Nightshade family.
    a. Bittersweet.
35. Honeysuckle family.
36. Composite family.
    a. Daisy.
    b. Garden coreopsis.
    c. Mayweed (Dog's fennel).
    d. Marguerite.
    e. Ragweed.
    f. Bachelor's button.
    g. Fall thistle.
    h. Chicory.
    i. Dandelion.
    j. Wild lettuce.

Questions in Botany.

Name three distinguishing features between plants and animals. 346.

Upon what do plants subsist? Name the four main divisions of plants. 2232.

Name three eminent botany students of early days. Who was the first writer of this subject?

Define annual, perennial, dicotyledon, parasite.

What are rust and yeast? How are ferns propagated?

To what family does the apple belong? 120.

By whom was the flowerless, seedless apple evolved? 121.

What beverages are made from grapes, apples, corn, and agave?

From what are asafetida, arnica, and opium made?

State a peculiarity of the eucalyptus tree.

What are sago, palmetto, and caoutchouc?

Name some useful tropical plants.

Describe tobacco, maple, and holly.

How did the name mandrake originate? By what other name is it known?

From what is manilla hemp made? Linseed oil?

What are weeds? How do plants become weeds?

Name several species of oak. What does the name oak signify?

Name some plants noted for their wood.

For what is ginseng used? By whom principally?

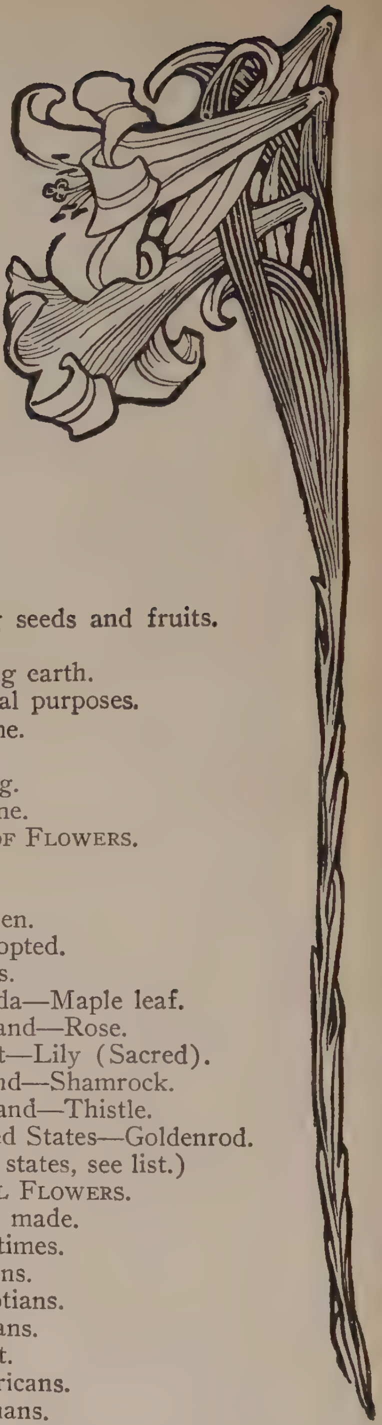
To what person and State is the celebration of Arbor day due?

What is an aquarium and for what is it used?

These children of the meadows, born
Of sunshine and of showers.

—*Whittier.*

Flowers.



- I. DESCRIPTION.
  - 1. Parts.
    - A. Receptacle, base of flower.
    - B. Perianth.
      - a. Sepals.
      - b. Petals.
    - C. Corolla.
    - D. Calyx.
    - E. Pistils (Female organs).
      - a. Ovary.
      - b. Ovules.
      - c. Stigma.
      - d. Style.
    - F. Stamens (Male organs).
      - a. Filament.
      - b. Anther.
      - c. Pollen.
  - 2. Diversities.
    - A. a. Hermaphrodite.
      - b. Unisexual.
    - B. a. Neuter.
      - b. Naked.
    - C. Sessile.
  - 3. Inflorescence.
    - A. Indeterminate.
      - a. Axillary—Red currant.
      - b. Raceme—Forget-me-not.
      - c. Corymb—Red haw.
      - d. Umbel—Carrot.
      - e. Spike—Plantain.
      - f. Head—Clover.
      - g. Panicle—Oats.
    - B. Determinate.
      - a. Terminal—Basswood.
      - b. Cyme—Chickweed.
  - 4. Reproduction.
    - A. Manner.
      - a. Transportation of pollen from stamen to pistil.
    - B. Agencies.
      - a. Insects.
      - b. Birds.
      - c. Falling of pollen.
      - d. Blowing through air.
    - C. Best results obtained from fertilization from different flowers of plants of same or similar species.
  - 5. Variations.
    - A. Forms.
    - B. Colors.
    - C. Construction.
- II. FLORICULTURE.
  - 1. Nurseries.
  - 2. Landscape gardening.
  - 3. Conservatories, hothouses, etc.
- III. OBJECT.
  - 1. Producing seeds and fruits.
- IV. USES.
  - 1. Beautifying earth.
  - 2. Commercial purposes.
    - A. Perfume.
    - B. Honey.
    - C. Coloring.
    - D. Medicine.
- V. ADOPTION OF FLOWERS.
  - 1. When.
  - 2. Why.
  - 3. How chosen.
  - 4. Where adopted.
    - A. Nations.
      - a. Canada—Maple leaf.
      - b. England—Rose.
      - c. Egypt—Lily (Sacred).
      - d. Ireland—Shamrock.
      - e. Scotland—Thistle.
      - f. United States—Goldenrod. (For states, see list.)
- VI. ARTIFICIAL FLOWERS.
  - 1. By whom made.
    - A. Early times.
      - a. Italians.
      - b. Egyptians.
      - c. Romans.
    - B. Present.
      - a. Americans.
      - b. Germans.
      - c. French.
  - 2. Use.
    - A. Millinery.
    - B. Decorations.

. Materials.
- A. Wax.
- B. Paper.
- C. Shell.
- D. Horn.
- E. Whalebone.
- F. Rubber.
- G. Velvet.
- H. Ribbons, etc.

VII. Language of Flowers.
1. Flowers are used as types to express thoughts and feelings.
2. Where developed.
3. By whom.
4. Types in common.
    - A. Amaranth—Immortality.
    - B. Oak leaf—Power.
    - C. Moss rosebud—Confession of love.
    - D. White rosebud—Happy in love.
5. See list.

Questions on Flowers.

Name the principal parts of a flower.
When is a flower said to be perfect? When sessile?
What is pollen and of what use is it? 2262.
State some uses of flowers.
How did the adoption of flowers as emblems come about? 1020.
What flower is considered sacred in Egypt?
How were many of the State flowers selected?
Name the adopted floral emblems in the states of Illinois, New York, California, and Iowa.
Give a list of at least six national flowers.
What flowers last only one day and night? Do flowers generally remain open at night?
What is said to be the most beautiful and fragrant of flowers?
Who were the first to advance the art of making artificial flowers to a more perfect state?
Which nations now excel in this industry? What is the value of the annual export of flowers from Germany and France?
What is meant by flower language?
State the significance of the following: Pansy, laurel, apple blossom, violet, daisy, and goldenrod. 1021.
Who is considered god of flowers?

Flowers in Literature.

Spake full well, in language quaint and olden,
  One who dwelleth by the castled Rhine,
When he called the flowers, so blue and golden,
  Stars, that in earth's firmament do shine.
—*Longfellow.*

In Eastern lands they talk in flowers,
And they tell in a garland their loves and cares;
Each blossom that blooms in their garden bowers
On its leaves a mystic language bears.
—*Percival.*

Gather ye rosebuds while ye may,
  Old Time is still a-flying,
And this same flower that smiles today,
  Tomorrow will be dying.
—*Herrick.*

L I T E R A T U R E

THE fact that poetry preceded prose in the origin of literature indicates the natural desire of mankind for beauty. Poetry is the voice of imagination, of music, of ideals; prose, of the practical affairs of life, of criticism, of the exposition of knowledge. As poetry is to literature, so is literature to education in general: that phase of common school education which arouses the desire for art and gives a finer taste for all that is best in achievement. Prose is to literature what the practical studies of mathematics and sciences are to education. A man's life could never reach its most complete achievement without both, but the natural instinct of man is for the ideal rather than the practical. The centuries when man's natural expression in all literature was in verse proves this. The practical must come, as it did in prose, but the natural desire must be satisfied first or the zest for the practical will be lost. Literature satisfies this natural craving of man; it furnishes the inspiration, the personality of education.

From the time savage man told of his conquests in wild, barbaric verse to the present-day poetry, polished in form and abounding in knowledge, narratives have been told in rhyme. When these stories swung themselves off in ringing stanzas which sing in spite of one's self, they fell easily under the head of *ballads.* But it is in the epics of literature that the more pretentious of these stories come, and the world's greatest writers have used this method of narration. The German *Nibelungenlied,* the Greek *Iliad* and *Odyssey,* and the Anglo-Saxon *Beowulf* are among the most famous examples of the world's early epics. Coming down through the centuries of English literature, it is found that the most profound subject-matter—dramatic, ideal, and sustained—has found its expression in the epics of *Paradise Lost, Faërie Queene,* and *Idylls of the King.* It was not until several centuries of development had passed in the British Isles that the drama found birth through the demand for action in literature. Prose was not developed sufficiently even in the 17th century to furnish an expression for the novel, yet people were eager for stories, and, as the masses could not read, the drama, modified and made more expressive of human character, was drafted into service. The *lyric,* the natural song of the poet's heart, the expression of all the emotions of mankind, has existed always, as the laughter and tears of the world have always existed. These forms, the *ballad,* the *epic,* the *drama,* and the *lyric,* furnish the basis of all poetic forms of expression.

Prose in the early history of the nations was merely the mode of expressing facts. Historical chronicles are the earliest forms of it in Anglo-Saxon prose. The Reformation advanced the clearness of English prose through the argumentation then prevalent. The printing press made it possible to present political and religious views in pamphlets. From that time there was a steady, but slow, growth in prose expression. Humor and nature found their way into the heavy sentences in the latter part of the 17th century. The presence of these elements made the entire prose expression more elastic and variable. The *novel* naturally follows, and critical *essays* developed rapidly as the possibilities of a concise, flexible prose offered themselves to the writers of these centuries. To-day it hardly seems possible that our literature was ever lacking in the many departments which are only possible through prose—those of the essay, the novel, the short story, the oration, and even that of our current periodicals.

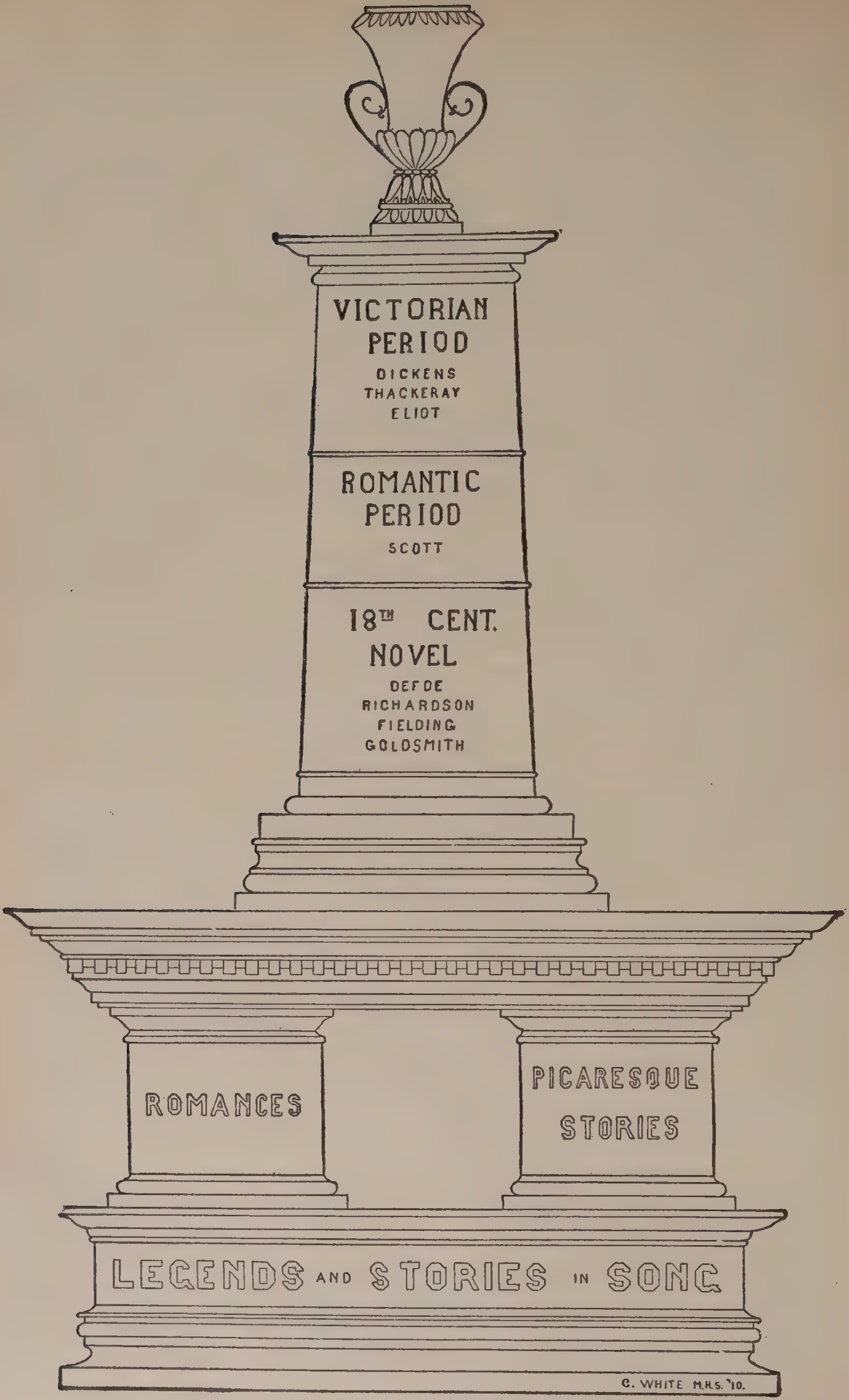
We can scarcely estimate the wealth of our inheritance in literature. Everything of importance in the literature of other ages is ours through translation, added to the magnificent production of our own English-speaking men of letters. The study of it should be an inspiration, not only to greater individual development, but toward that of the natural life as well, through the efforts of our public schools.

Studying Literature.

BOYS and girls of the age to study literature are ready, emotionally, for all that is beautiful in prose and poetry; mentally, they are just at the stage of their development where the realization that they have power to make clear to themselves and others the masterpieces of literature is of the greatest importance. A feeling of power leads to a further desire for new fields of conquest. In no development of school work is this general characteristic of mankind so forcibly evident as in the study of literature. But to develop this trait the pupil must be allowed sufficient freedom for research work, must be given a chance to develop the imitative within him. The teacher must keep in the background, an inspiring and guiding force, but not to take away the zest of discovery from the pupil by giving him what he can find for himself.

No public school course can do more than open the doors to the vast pleasures in literature: but those doors may be opened in such a way that the boys and girls will never care to shut them again—in fact, never can shut them again—against the enjoyment of companionship with the world's greatest men and women. The plan of research and report work through topics assigned by the teacher leaves the pupil the power of imitation within the bounds of his ability.

The outline of literature following this introduction is designed to furnish topics for pupils' work in chronological order, so that a complete history of English and American literature may stand out definitely, as well as the interpretation and detailed study of the individual writers. The reports assigned on these topics are to be presented to the class by the pupil in such a manner that notes can be taken and recited upon. Each writer's characteristics should be proved through the reading of his productions, and definite examples given to illustrate the truth of the subdivisions under that head. This particular part of the outline plan develops true critical ability in reading and brings the boys and girls to realize


VICTORIAN PERIOD
DICKENS
THACKERAY
ELIOT
ROMANTIC PERIOD
SCOTT
18TH CENT. NOVEL
DEFOE
RICHARDSON
FIELDING
GOLDSMITH
ROMANCES
PICARESQUE STORIES
LEGENDS AND STORIES IN SONG
C. WHITE M.H.S. '10.

PERIODS OF ENGLISH LITERATURE.

their ability to read good books intelligently; having realized this once, literature of a poorer class will lose its attraction, for the poor sentiment, the lack of strength, the bombastic display of rhetoric will appear to them as the toys of their earlier years. Thus there is a possibility here which must appeal to every true teacher: the possibility of removing future failures in the lives of boys and girls, by creating an indifference to all but the best.

English Literature.

Old English of Anglo-Saxon Period (449-1066).

I. HISTORICAL BACKGROUND.
  A. Roman conquest of Britain.
  B. Teutonic conquests.
  C. Introduction of Christianity.
II. FIRST POETRY AND WRITERS.
  A. Scop and Gleeman.
  B. *Beowulf:* greatest Anglo-Saxon epic.
  C. Caedmon and his paraphrase.
  D. The Cynewulf cycle.
  E. Characteristics.
    a. Love of the sea and war.
    b. Background of rugged, stormy land.
    c. Gloom; stern sense of duty.
    d. Rhythm, but no rhyme.
III. PROSE PRODUCTIONS AND WRITERS.
  A. Alfred the Great.
  B. Bede.
  C. Anglo-Saxon Chronicle.

Suggestions for Study and Questions on the Anglo-Saxon Period

BEOWULF — Read translations in Morley's *English Writers,* and prepare report of characteristics of Anglo-Saxon literature found in the poem. What difference is there in the treatment of nature by the Anglo-Saxon and a writer of to-day? Is there any analogy between the struggles in the poem and the struggles of the Teutons with nature? What knowledge of early customs does the poem give?

How can you account for the fact that poetry precedes prose in its origin?

What effect did the introduction of Christianity have on the character and literature of the Anglo-Saxons?

What work of this period is similar to *Paradise Lost?*

The Transition Period.

(1066-1400).

I. HISTORICAL BACKGROUND.
  A. Norman Conquest.
  B. The Crusades.
  C. Unsettled conditions of England following Norman Conquest.
  D. Final mingling of Anglo-Saxon and Norman races.
II. GENERAL CHARACTERISTICS OF PERIOD.
  A. No settled language.
  B. A period of lack of productions until the last century.
  C. First productions in English language.

III. WRITERS.
- A. Prose.
  - 1. Geoffrey of Monmouth.
  - 2. Sir John Mandeville.
  - 3. John Wycliffe.
- B. Poets.
  - 1. John Gower.
  - 2. William Langland.
  - 3. Geoffrey Chaucer.
    - a. Life.
    - b. Minor poems.
      - 1. *Legend of Good Women.*
      - 2. *Troylus and Cryseyde.*
      - 3. *House of Fame.*
    - c. Masterpiece.
      - 1. *Canterbury Tales.*
        - a. Plan.
        - b. Characteristics of early times.
        - c. Chaucer's characteristics in poems.
    - d. Characteristics of poetry.
      - 1. Influence of French and Italian literature.
      - 2. Love of nature.
      - 3. Breadth of sympathy.
      - 4. Humor.
      - 5. Power to tell story in verse.
      - 6. Portrayal of character.
    - e. Place.
      - 1. Founder of English language.
      - 2. Third place among English writers by some critics; fourth by others in poetic ability.
      - 3. First great English poet in time.

Suggestions and Questions for Study.

Why is this period called the Transition Period?

Why is Monmouth valuable to later writers?

What similarity is there between Mandeville's *Travels* and Swift's *Gulliver's Travels?*

Why is John Wycliffe called the "Morning Star of the Reformation"? On what is Wycliffe's rank as the most important prose writer of the 14th century based?

How does John Gower show the confused state of the English language in his time?

What is the similarity between William Langland's *Piers Plowman* and Bunyan's *Pilgrim's Progress?*

Into what three periods is Chaucer's work divided?

Why does Chaucer's work close the Transition Period?

Read the *Prologue* and the *Knight's Tale* from Dryden's translation of the *Canterbury Tales* and make reports to illustrate Chaucer's characteristics of humor, power of character portrayal, and love of nature. Compare Dryden's translation with the original verse of Chaucer to get the difference between the early and modern English language.

> That noble Chaucer in those former times,
> Who first enriched our English with his rhymes;
> Spoke first in mighty numbers, delving in the mine
> Of perfect knowledge.
>
> —*Wordsworth.*

The Fifteenth Century.

A Period of Literary Depression.

- I. HISTORICAL BACKGROUND.
  - A. War of Roses.
  - B. Discovery of America.
  - C. Introduction of printing.
  - D. Capture of Constantinople.
- II. GENERAL CHARACTERISTICS.
  - A. Reaction against chivalry.
  - B. Lack of freedom of thought.
  - C. Lack of high ideals in education.
  - D. Ballad singing.
- III. LITERATURE.
  - A. Prose.
    - 1. Thomas Malory's *Morte d'Arthur.*
    - 2. William Tyndale's Translation of the Bible.
      - a. Very similar to present version.
      - b. Clearness of prose expression advanced.
    - 3. Robert Ascham's *School-master.*
  - B. Poetry.
    - 1. Scottish ballads by William Dunbar.
    - 2. Review of old songs: *Robin Hood; Chevy Chase.*
    - 3. Introduction of Italian sonnet form by Wyatt and Surrey.

English as Written in the 15th Century.

Sir Percival.

But this knyght that foughte with Syre Percyval was a proved knyght and a wyse fyghtinge knyghte, and Syre Percyvale was yonge and stronge, not knowying in fyghtying as the other was. Thenne Syre Percyval spake fyrste and sayd syre knyght hold thy hand a whyle stille, for we have foughten for a symple mater and quarel over longe, and therefore I requyre thee tell me thy name, for I was never or this tyme matched. Soo god me help, sayd that knyghte that wounded me soo sore as thow hast done, and yet have I foughten in many batails, and now shalt thow wete that I am a knyghte of the table round, and my name is Syre Ector de Marys broder unto the good knighte Syre Launcelot du Lake. Allas said Syre Percyval and my name is Syre Percyval de Galys that hath made my quest to seke Syre Launcelot, and now I am seker that I shall never fynysshe my quest, for ye have slayne me with your handles. It is not soo said Syre Ector, for I am slayne by yoore handes, therefore I requyre you ryde ye here by to a pryory, and brynge me a preest that I may receyve my Saveour, for I may not lyve. Alas said Syre Percyval that never will be, for I am so faynte for bledyne that I maye unnethe stande, how shold I thenne take my hors.

—*Thomas Malory.*

Test Questions.

What makes this period one of importance to English literature in spite of the lack of productions?

Can you see any reason why the use of gunpowder necessitated a change in the subject-matter of romance?

What effect does a civil war have on the literary production of the country during the time it is in progress? Apply your answer to the case of England during the War of the Roses.

The events enumerated in the historical background of the period are among the reasons why the Elizabethan period was one of such remarkable literary brilliancy. Why did they not have the same effect on the period in which they occurred?

Of what value was the capture of Constantinople to literature?

Read the ballads: *A Lyteel Geste of Robyn Hood, Robyn Hood's Death and Burial, The Nut-Brown Maid.*

Age of Elizabeth.

(1558-1625).

Climax of Greatness in English Literature.

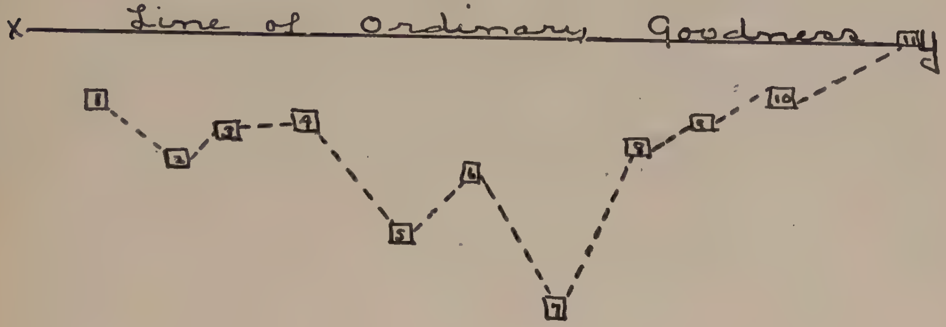
- I. HISTORICAL BACKGROUND.
    - A. Exploration and settlement of the New World.
    - B. Gradual development of Puritanism.
    - C. Defeat of the Spanish Armada.
    - D. Reign of Elizabeth.
    - E. Reign of James I. (first of Stuart kings).
- II. INFLUENCES GIVING RISE TO GREATNESS OF LITERATURE.
    - A. Liberal intelligence of Elizabeth.
    - B. Combined effects of Renaissance and Reformation.
    - C. Imagination aroused by stories of New World.
    - D. Rise of middle class.
    - E. Greater use of printing press.
- III. GENERAL CHARACTERISTICS OF LITERATURE.
    - A. Strong imagination.
    - B. Youthful enthusiasm.
    - C. Love of adventure.
    - D. Love of nature.
    - E. Variety of subject-matter.
    - F. Dramatic expression.
    - G. Extravagant decoration.
- IV. PRODUCTION.
    - A. Prose.
        - 1. Philip Sidney.
        - 2. Richard Hooker.
        - 3. Francis Bacon.
            - a. Life.
            - b. Works.
                - 1. Essays on all subjects.
                - 2. Scientific and historical.
            - c. Literary characteristics.
                - 1. Clear, concise sentences.
                - 2. Breadth of knowledge.
                - 3. Figures drawn from court life.
                - 4. Interest.
    - B. Poetry.
        - 1. Nondramatic.
            - a. Edmund Spenser.
                - 1. Life.
                - 2. Works.
                    - a. Minor poems.
                        - 1. *Shepherd's Calendar.*
                        - 2. *Epithalamium.*
                    - b. Masterpiece.
                        - 1. *Faërie Queene.*
                            - a. Place.
                            - b. Style.
                            - c. Rank.

> Thanks to the human heart by which we live,
>   Thanks to its tenderness, its joys, and fears,
> To me the meanest flower that blows can give
>   Thoughts that do often lie too deep for tears.
> —*Wordsworth.*

Graphic of Gertrude's Character.

Edith Ayres.

Shakespeare's Hamlet.



Key to Graphic.

1 = Beginning of play.
2 = First speech to Hamlet (p. 33).
3 = Affection for Hamlet.
4 = Affection for Hamlet.
5 = Lack of feeling for King Hamlet.
6. = Affection for Hamlet.
7 = Play scene.
8 = Closet scene.
9 = Affection for Hamlet.
10 = Ophelia's death and burial.
11 = Death.

BLACKBOARD LESSON.

    - c. Characteristics.
      - 1. Melody.
      - 2. High ideals.
      - 3. Absolute expression.
      - 4. Influence on other poets.
      - 5. Spenserian stanza.
  - b. Large number of writers of lyrics used sonnets.
- 2. Dramatic.
  - a. Thomas Sackville.
  - b. Christopher Marlowe.
    - 1. Life.
    - 2. Works.
      - a. Example of greed for money.
        - 1. *The Jew of Malta.*
      - b. Example of greed for knowledge.
        - 1. *Dr. Faustus.*
      - c. Example of greed for conquest.
        - 1. *Tamburlaine the Great.*
    - 3. Characteristics.
      - a. Extravagant imagination.
      - b. Extreme types in character.
      - c. Youthful enthusiasm.
      - d. Highly decorated expression.
    - 4. Influence.
      - a. Made blank verse variable and flexible, to suit subject-matter.
      - b. Shakespeare adopted his new form.
  - c. William Shakespeare.
    - 1. Life.
    - 2. Work.
      - a. Nondramatic.
        - 1. *Venus and Adonis.*
        - 2. *Lucrece.*
        - 3. 150 sonnets.
      - b. Characteristics of nondramatic poems.
        - 1. Subject-matter—Love and nature.
        - 2. Exquisite expression in sonnet form.
      - c. Rank of nondramatic work.
        - 1. Would have placed Shakespeare among the first poets of the world.
      - d. Dramatic—According to periods of life.
        - 1. Youthful, hopeful period.
          - a. *Comedy of Errors.*
          - b. *Midsummer Night's Dream.*
          - c. *Romeo and Juliet.*
          - d. *Richard II.* and *III.*
        - 2. Deeper insight, deeper philosophy, better plot.
          - a. *As You Like It.*
          - b. *Merchant of Venice.*
          - c. *Henry IV.* and *Henry V.*
        - 3. Disappointment, sorrow, weakened faith.
          - a. *Hamlet.*
          - b. *Julius Caesar.*
          - c. *Othello.*
          - d. *Macbeth.*

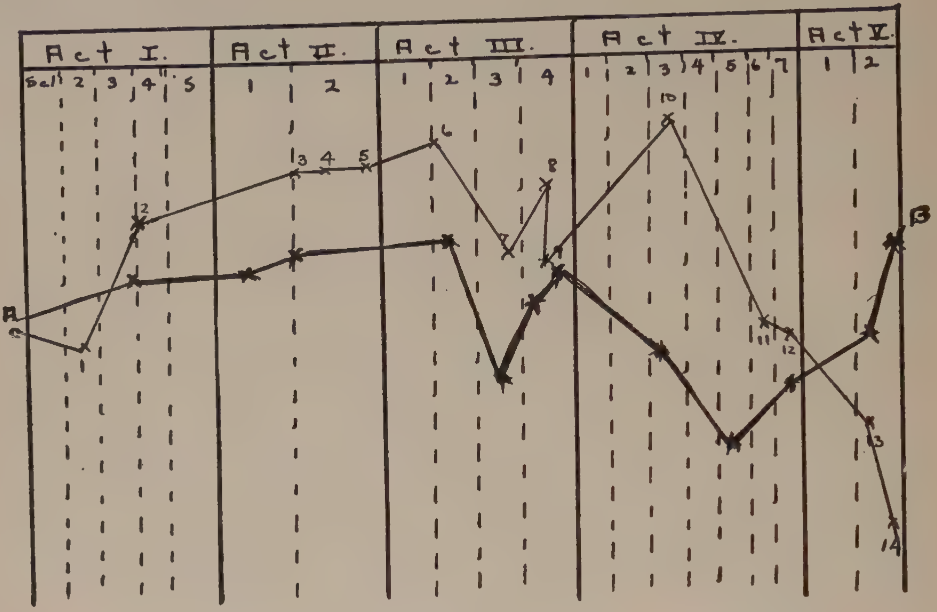
            - 4. Closing years—Faith and strength.
                - a. *Cymbeline.*
                - b. *The Tempest.*
        - e. Plot.
            - 1. Material.
                - a. From old English chronicles.
                - b. From Plutarch's *Lives.*
                - c. Miscellaneous manuscript.
            - 2. Treatment in general.
                - a. Act. I.
                    - 1. Introduction of main character.
                    - 2. Previous history.
                    - 3. Purpose and plan of hero.
                    - 4. Background.
                - b. Act II.
                    - 1. Development of hero's purpose.
                    - 2. Introduction of opposition active.
                    - 3. Introduction of minor lines of actions.
                - c. Act III.
                    - 1. Climax.
                - d. Act IV.
                    - 1. Decline of opposition.
                    - 2. Progress of hero's plan.
                - e. Act V.
                    - 1. Conclusion.
        - f. General characteristics.
            - 1. Sympathy with all classes.
            - 2. Love of nature.
            - 3. Humor.
            - 4. Mixture of comedy and tragedy.
            - 5. Command of vocabulary.
            - 6. Imagery.
        - g. Rank.
            - 1. First of all times and nations.
- d. Ben Jonson.
    - 1. Life.
    - 2. Works.
        - a. Prose.
            - 1. Critical essays.
        - b. Poetry.
            - 1. Nondramatic.
                - a. Lyrics.
            - 2. Dramatic.
                - a. *The Silent Woman.*
                - b. *Volpone.*
                - c. *The Alchemist.*
                - d. *Masques.*
    - 3. Characteristics.
        - a. Display of technical knowledge.
        - b. Lack of sympathy.
        - c. Satire.
        - d. Vigorous critical power.
        - e. Exquisite lyrical expression.
- e. Beaumont and Fletcher.
- f. John Webster.

Hope, for a season, bade the world farewell,
And freedom shriek'd, as Kosciusko fell.
—*Campbell.*

Graphic of the Plot.

Edith Ayres

Shakespeare's Hamlet.



Key to the Chart.

A - B = Main Action.

Characters - Hamlet and Horatio.

1 = Meets the ghost.

2 = Means to avenge father's death.

3 = Gets companions to swear silence.

4 = Gives play.

5 = Loses chance to kill King.

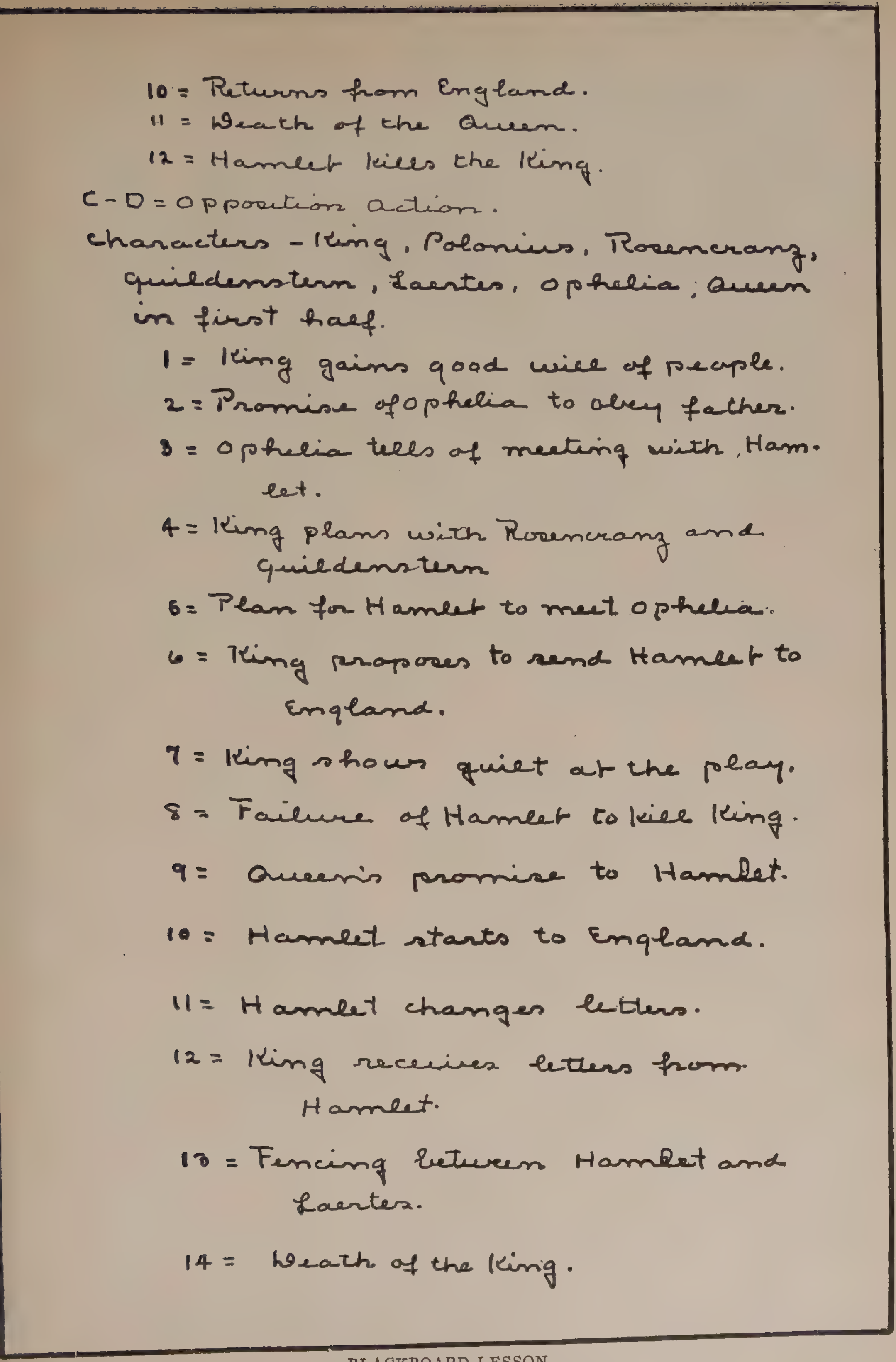
6 = Hamlet talks with his mother.

7 = Kills Polonius.

8 = Goes to England.

9 = "My thoughts be bloody or be nothing worth."

BLACKBOARD LESSON.



10 = Returns from England.
11 = Death of the Queen.
12 = Hamlet kills the King.
C-D = Opposition action.
Characters — King, Polonius, Rosencranz, Guildenstern, Laertes, Ophelia; Queen in first half.
1 = King gains good will of people.
2 = Promise of Ophelia to obey father.
3 = Ophelia tells of meeting with Hamlet.
4 = King plans with Rosencranz and Guildenstern
5 = Plan for Hamlet to meet Ophelia.
6 = King proposes to send Hamlet to England.
7 = King shows quiet at the play.
8 = Failure of Hamlet to kill King.
9 = Queen's promise to Hamlet.
10 = Hamlet starts to England.
11 = Hamlet changes letters.
12 = King receives letters from Hamlet.
13 = Fencing between Hamlet and Laertes.
14 = Death of the King.

BLACKBOARD LESSON.

Questions and Suggestions for Elizabethan Age.

Spenser is called a subjective poet. Explain.

What is an allegory? Illustrate by *Faërie Queene.*

Define the Spenserian stanza from the use in the *Faërie Queene.* See Byron's *Childe Harold* for more modern use of this verse form.

What is a sonnet? Illustrate from Shakespeare.

Define a lyric. Select examples from Ben Jonson's work and from those thrown into Shakespeare's plays.

What contrast in the characters of Jonson and Shakespeare can be seen from the literary characteristics of the two?

What is satire? Why is it detrimental to good literature?

Did the change in the royal family ruling in England have anything to do with the decline of literature in the latter part of this period?

SHAKESPEARE: Read a play from each of the periods of Shakespeare's life and trace the influence of events in each. Outline a play to illustrate the plot formation as shown under the head, "Treatment in General," in the outline. Make a list of references, as you read, to illustrate Shakespeare's characteristics.

For what is Sidney famous in the history of prose development? Hooker?

Puritan Age (1625-1660).

I. HISTORICAL BACKGROUND.
    A. Conflict between Cavaliers and Puritans.
    B. Civil war.
    C. Commonwealth.
II. EFFECT OF STRUGGLE ON LITERATURE.
    A. Period of argumentation.
    B. Prose, rather than poetical, development.
    C. Religious fervor.
    D. Lack of originality.
III. LITERATURE.
    A. Prose.
        1. Jeremy Taylor.
        2. Izaak Walton.
        3. Thomas Hobbes.
        4. John Milton.
        5. Sir Walter Raleigh.
        6. Lord Clarendon.
        7. Thomas Fuller.
    B. Poetry.
        1. Caroline or Cavalier School.
            a. Writers.
                1. Abraham Cowley.
                2. Robert Herrick.
            b. Characteristics.
                1. Light subject-matter.
                2. Extensive decoration.
                3. Lyric.
        2. John Milton.
            a. Life.
            b. Poetry.
                1. Minor poems.
                    a. *L'Allegro.*
                    b. *Il Penseroso.*
                    c. *Comus.*
                    d. *Lycidas.*
                    e. *Sonnets.*
                2. Later and more important poems.
                    a. *Samson Agonistes.*
                    b. *Paradise Regained.*
                    c. *Paradise Lost.*
            c. Character of work.
                1. Melody.
                2. Majesty.
                3. Vivid imagination.
                4. Beauty.
                5. Polished verse form.
                6. Figurative.
            d. Rank.
                1. Second to Shakespeare.

Questions and Suggestions for Study.

Why was the drama neglected in this period?

Give the particular line of prose development for which each of the writers stand.

Can you see why the Cavalier school would rebound from the general characteristics of the period?

Compare the practical business ability of Shakespeare, Milton, and Chaucer.

What is a masque? *Comus* is claimed to be the greatest in the English language. Read it and make a list of points to prove the place it holds.

Learn Milton's *Ode to Blindness,* and explain how it illustrates his character.

What possibilities in Milton's life are indicated by *L'Allegro* and *Il Penseroso?*

Paradise Lost: Tell the story of the writing of the poem: the first six lines of Book I., give the subject-matter and tell the purpose; learn both. Why is this an epic poem? Why did Milton write *Paradise Regained?* How does it compare with *Paradise Lost?*

What influence has Milton had on theology?

Milton called his prose his *left hand.* Explain.

Learn Milton's definition for education in his article on Education.

Restoration Period (1660-1700).

I. HISTORICAL BACKGROUND.
  A. Restoration of Stuarts to throne.
  B. Revolution of 1688.
II. CHARACTERISTICS OF LITERATURE.
  A. Low moral standard.
  B. Omission of nature reference and background.
  C. Increase of scientific knowledge.
  D. French influence.
  E. Attention to verse form rather than subject-matter.
III. WRITERS.
  A John Bunyan.
    1. Life.
    2. Works.
      a. *Life and Death of Mr. Badman.*
      b. *Holy War.*
      c. *Pilgrim's Progress.*
    3. Characteristic of style.
      a. Simple words.
      b. Vivid imagination.
      c. Dramatic action.
      d. Sincerity.
  B. John Dryden.
    1. Life.
    2. Works.
      a. Prose.
        1. Critical essays.
      b. Poetry.
        1. Plays.
          a. *All for Love.*
        2. Satirical poems.
          a. *Absalom and Achitophel.*
          b. *Mac Flecknoe.*
          c. *Hind and Panther.*
        3. Odes.
          a. *Alexander's Feast.*
          b. *To Saint Cecilia's Day.*
        4. Translations.
          a. *Virgil.*
          b. *Chaucer.*

- c. Characteristics.
  - 1. Prose.
    - a. Short, precise sentences.
    - b. Keen critical power.
  - 2. Poetry.
    - a. Lack of sympathy.
    - b. Vigor.
    - c. Didactic subject-matter.
    - d. Polished verse form.

Suggestions and Questions.

Which of Shakespeare's plays has the same historical basis as *All for Love?* Comparing the characteristics of the two poets, what conclusion do you reach with regard to the merit of the plays?

Define didactic poetry. Is Dryden's didacticism the same as that of our American poets of the New England group?

Why does John Bunyan seem out of place in his period?

Pilgrim's Progress: Give form and subject-matter. What is the reason that this, next to the Bible, has been the most widely read book in the English language?

Classical Period (1700-1740).

- I. HISTORICAL BACKGROUND.
  - A. Reign of Queen Anne, George I., and George II.
- II. CHARACTERISTICS OF PERIOD.
  - A. Low moral standard.
  - B. Lack of originality.
  - C. Perfect verse form.
  - D. Satire.
- III. WRITERS.
  - A. Prose.
    - 1. Daniel Defoe.
    - 2. Jonathan Swift.
      - a. Life.
      - b. Work.
        - 1. *Tale of a Tub.*
        - 2. *Gulliver's Travels.*
      - c. Characteristics of work.
        - 1. Satirical humor.
        - 2. Lack of pathos.
        - 3. Simple, direct style.
    - 3. Joseph Addison and Richard Steele.
      - a. Lives.
      - b. Chief work: *Sir Roger de Coverly Popes.*
      - c. Characteristics of work.
        - 1. Addison.
          - a. Kindly humor.
          - b. Smooth, elegant sentence.
        - 2. Steele.
          - a. Strength and pathos.
          - b. Carelessness in sentence structure.

B. Poetry.
  1. Alexander Pope.
    a. Life.
    b. Work.
      1. Translation of Virgil and Homer.
      2. *Essay on Man.*
      3. *Rape of the Lock.*
      4. *Essay on Criticism.*
      5. *The Dunciad.*
    c. Characteristics of work.
      1. Lack of imagination and emotion.
      2. Subject-matter sacrificed to verse form.
      3. Rhyming couplet at its climax.
      4. Leader of satiric didactic poetry.

Questions and Suggestions.

What were the *Tattler* and *Spectator?* What in American literature compares with them?

Contrast the humor of Addison and Swift.

Why is this period sometimes called the Age of Pope?

What is the classical couplet? Why is it sometimes called the *rocking-horse couplet?*

Read enough of Pope's poems to be familiar with his verse form and to illustrate his characteristics.

Preparation for Romantic Period.

(1740-1780).

I. Historical Background.
  A. American Revolution.
  B. Reforms in government and political views.

II. Characteristics.
  A. Return of religious enthusiasm.
  B. Revival of dramatic tastes.
  C. Indications of great freedom of thought.
  D. Rise of novel.

III. Literature.
  A. Foundation Work for Romantic Period.
    1. Thomas Gray.
    2. James Macpherson.
    3. Horace Walpole.
    4. Thomas Percy.
    5. Oliver Goldsmith.
      a. Life.
      b. Work.
        1. Prose.
          a. *Vicar of Wakefield.*
        2. Poetry.
          a. *The Deserted Village.*
          b. *She Stoops to Conquer.*
      c. Characteristics.
        1. Quaint, analytical prose style.
        2. Humor.
        3. Mixture of classical and romantic characteristics.
        4. Good plot and active in drama.
  B. First English novel writers.
    1. Samuel Richardson.
      a. Life.

    - b. Work.
        1. *Pamela.*
        2. *Clarissa Harlowe.*
        3. *Sir Charles Grandison.*
    - c. Characteristics of work.
        1. Tediousness.
        2. Narrow views.
        3. Interest in characters.
  2. Henry Fielding.
    - a. Life.
    - b. Work.
        1. *Joseph Andrews.*
        2. *Tom Jones.*
        3. *Amelia.*
    - c. Characteristics of work.
        1. Humor.
        2. Perfection of plot.
        3. Vigorous characterization.
  3. Tobias Smollett.
  4. Laurence Sterne.

C. Miscellaneous prose writers.
  1. David Hume.
  2. Edward Gibbon.
  3. Edmund Burke.
  4. Samuel Johnson.
    - a. Life.
    - b. Work.
        1. *Essays.*
        2. *Rasselas.*
        3. *Lives of Poets.*
    - c. Characteristics of writing.
        1. Elaborate manner of expression.
        2. Philosophical.
        3. No imaginative coloring.
        4. Strength.

D. Dramatic writers.
  1. Richard Sheridan.
  2. Oliver Goldsmith.

Questions and Suggestions.

Where did Macpherson and Thomas Percy get material for their work?

How does the *Deserted Village* show the mixed characteristics of the classical and romantic writers?

Who is called the inventor of the English novel?

Why is Henry Fielding considered the greatest novelist of the 18th century? What is his masterpiece?

What friend of Johnson's became famous through writing his biography?

What famous club was formed in London in 1764? Name the important members.

On what quality does Johnson's fame rest?

What is the difference between a romance and a novel?

What is the meaning of the term "Picaresque" in connection with story-writing?

Romantic Period.

- I. HISTORICAL BACKGROUND.
  - A. French Revolution.
  - B. Effect of American Revolution.
  - C. Time of peace in England.
- II. CHARACTERISTICS OF ROMANTICISM.
  - A. The opposite of matter-of-fact.
  - B. Deep feeling.
  - C. Love of nature, especially wild nature.
  - D. Democracy.
  - E. Use of supernatural in subject-matter.
  - F. Love of adventure and mystery.
  - G. Beauty of thought and expression.
- III. WRITINGS.
  - A. Prose writers.
    - 1. Charles Lamb.
    - 2. Thomas De Quincey.
    - 3. Walter Savage Landor.
    - 4. Jane Austen.
  - B. Writers of both prose and poetry.
    - 1. Sir Walter Scott.
      - a. Life.
      - b. Works.
        - 1. Poetry.
          - a. *Minstrelsy of Scottish Border.*
          - b. *Lay of the Last Minstrel.*
          - c. *Marmion.*
          - d. *Lady of the Lake.*
        - 2. Prose.
          - a. History.
            - 1. *Life of Napoleon.*
            - 2. *Tales of a Grandfather.*
          - b. Fiction.
            - 1. *Ivanhoe.*
            - 2. *Heart of Midlothian.*
            - 3. *Kenilworth.*
            - 4. *Bride of Lammermoor,* etc.
          - c. Characteristics.
            - 1. Mystery.
            - 2. Adventure.
            - 3. Energy.
            - 4. Love of wild nature.
            - 5. Love of supernatural.
            - 6. Return to past for subject-matter.
    - 2. Samuel Taylor Coleridge.
      - a. Life.
      - b. Works.
        - 1. Poetry.
          - a. *Christabel.*
          - b. *Kubla Khan.*
          - c. *The Ancient Mariner.*
        - 2. Prose.
          - a. Biography.
          - b. Lectures and notes on Shakespeare.

- c. Characteristics.
    - 1. Supernatural.
    - 2. Brilliant color.
    - 3. Beauty in ideals.
    - 4. Keenness of critical judgment.

C. Poets.

- 1. Robert Burns.
    - a. Life.
    - b. Works.
        - 1. Individual poems.
            - a. *Cotter's Saturday Night.*
            - b. *Tam O'Shanter.*
        - 2. Songs and lyrics.
    - c. Characteristics.
        - 1. Love of simple nature.
        - 2. Humor.
        - 3. Sympathy.
        - 4. Sincerity.
        - 5. Originality.
        - 6. Master of lyrical expression.
        - 7. Use of Scottish dialect.
- 2. William Wordsworth.
    - a. Life.
    - b. Poetry.
        - 1. Long poems.
            - a. *The Prelude.*
            - b. *Michael.*
            - c. *Excursion.*
        - 2. Other famous poems.
            - a. *Ode to Duty.*
            - b. *Intimations of Immortality.*
            - c. *Solitary Reaper.*
            - d. *Daffodils.*
            - e. *She Was a Phantom of Delight.*
            - f. *Odes.*
    - c. Characteristics.
        - 1. Meditation.
        - 2. Sympathy with lowly life.
        - 3. Extreme love of quiet, simple nature.
        - 4. Strength.
        - 5. Simplicity.
    - d. Rank.
        - 1. Third among English poets.
- 3. Lord Byron.
    - a. Life.
    - b. Poems.
        - 1. *Prisoner of Chillon.*
        - 2. *Manfred.*
        - 3. *Cain.*
        - 4. *Childe Harold's Pilgrimage.*
        - 5. *Vision of Judgment.*
        - 6. *Don Juan.*
    - c. Characteristics.
        - 1. Rebellion against all law.
        - 2. Force.
        - 3. Emotion.
        - 4. Keen, cynical wit.
        - 5. Half pity.
        - 6. Lack of restraint in verse form.

4. Percy Bysshe Shelley.
    - a. Life.
    - b. Poems.
        1. *Prometheus Unbound.*
        2. *The Cenci.*
        3. *Adonais.*
        4. *Songs and Odes*
    - c. Characteristics.
        1. Pure love of freedom.
        2. Idealization of nature.
        3. Fragile beauty.
        4. Harmony.
        5. Lyrical power.
5. John Keats.
    - a. Life.
    - b. Poems.
        1. *Endymion.*
        2. *Lamia.*
        3. *Isabella.*
        4. *Eve of Saint Agnes.*
        5. *Hyperion.*
        6. Shorter poems and odes.
    - c. Characteristics.
        1. Mediaeval subject-matter.
        2. Appeal to senses.
        3. Youthful enthusiasm.
        4. Beauty.
        5. Musical verse.

Questions and Suggestions.

What is found in the characteristics of the different writers to show the influence of the French Revolution? How many of the writers contemplated active service in the Revolution?

What writer of this period made the English Lake District famous?

How did Burns establish a national spirit in Scottish poetry? Why did he accomplish more in that line than Scott? Read Burns' *A Man's a Man for a' That* and explain how it expresses the democratic feeling of the period. Read *A Mountain's Daisy* and show what characteristics it illustrates. *Tam O' Shanter* is considered Burns' best poem by many. Does it appeal to you so?

How did Scott's life and ancestors furnish material for his work? Illustrate Scott's characteristics by references to *Ivanhoe* and *Lady of the Lake.* Why did Scott give up writing poetry?

Why is the *Ancient Mariner* illustrative of Coleridge's love of the supernatural? Of color?

How does Wordsworth's *Michael* illustrate his love of lowly life? Read *A Solitary Reaper* for exquisite thought and musical expressions; *Daffodils* for extreme love of nature. Why does Wordsworth rank third in English literature?

What points of similarity do you find in the lives of Byron, Shelley, and Keats? In their characteristics? Read *To a Cloud, Eve of Saint Agnes,* and *Prisoner of Chillon.*

What American writers were living and writing at this period?

Victorian Period.

- I. HISTORICAL BACKGROUND.
    - A. Period of invention.
    - B. Period of theological and scientific investigation.
- II. GENERAL CHARACTERISTICS.
    - A. Mixture of scientific and imaginative subject-matter.
    - B. Desire for truth.
    - C. Analysis of motives.
    - D. High ideals.
    - E. Struggles in religious faith.
    - F. Variety of production.
- III. WRITERS.
    - A. Thomas Macaulay.
        - 1. Life.
        - 2. Work.
            - a. Poetry.
                - 1. *Lays of Ancient Rome.*
            - b. Prose.
                - 1. *History of England.*
                - 2. *Essays.*
        - 3. Characteristics.
            - a. Clearness.
            - b. Energy.
            - c. Brilliancy.
            - d. Practical views.
    - B. Thomas Carlyle.
        - 1. Life.
        - 2. Work.
            - a. *Translations.*
            - b. *Life of Schiller.*
            - c. *Life of Burns.*
            - d. *Sartor Resartus.*
            - e. *French Revolution.*
            - f. *Oliver Cromwell.*
            - g. *Frederick the Great.*
            - h. *Heroes and Hero Worship.*
        - 3. Characteristics.
            - a. Satire mixed with sympathetic interest.
            - b. Philosophy.
            - c. Sincerity.
            - d. Force.
            - e. Figurative expression.
    - C. John Ruskin.
        - 1. Life.
        - 2. Works.
            - a. *Essays on Art.*
            - b. *Essays on Morals.*
            - c. *Essays on Social Reform.*
        - 3. Characteristics.
            - a. Love of nature.
            - b. Imagery.
            - c. Musical sentences.
            - d. Clearness.
            - e. Sincere purpose.
            - f. Breadth of knowledge.
    - D. Matthew Arnold.
        - 1. Life.
        - 2. Work.
            - a. Poetry.
                - 1. *Sohrab and Rustum.*
                - 2. Lyrics, elegies, sonnets.
            - b. Prose.
                - 1. Literary criticisms.
                - 2. Theological discussions.
                - 3. Essays on social questions.
        - 3. Characteristics.
            - a. Poetry.
                - 1. Reflection.
                - 2. Lack of hope.
                - 3. Religious doubt.
                - 4. Love of sea.
                - 5. Irregularity of verse form.
            - b. Prose.
                - 1. Easy, conversational style.
                - 2. Clearness.
                - 3. Unprejudiced criticisms.
                - 4. Plea for culture.
    - E. George Eliot.
        - a. Life.
        - b. Work.
            - 1. Poetry.
                - a. *Spanish Gypsy.*
                - b. Shorter poems.
            - 2. Novels.
                - a. Based on early life and associations.
                    - 1. *Adam Bede.*
                    - 2. *Silas Marner.*
                    - 3. *Mill on the Floss.*
                    - 4. *Scenes from Clerical Life.*
                - b. Foreign background.
                    - 1. *Romola.*
                - c. Marking decline in power.
                    - 1. *Middlemarch.*
                    - 2. *Daniel Deronda.*
        - c. Characteristics.
            - 1. Analysis of character.
            - 2. Didactic purpose.
            - 3. Development of character with circumstances.
            - 4. Originality.
            - 5. Clearness and force.
            - 6. Humor.
    - F. Charles Dickens.
        - 1. Life.
        - 2. Works.
            - a. *Pickwick Papers.*
            - b. *Oliver Twist.*

- c. *Tale of Two Cities.*
- d. *David Copperfield.*

3. Characteristics.
    - a. Vigorous, clear style.
    - b. Sympathy with lower classes.
    - c. Mixtures of humor and pathos.
    - d. Vanity of character.
    - e. Vivid imagination.

G. William Makepeace Thackeray.

1. Life.
2. Work.
    - a. Essays.
    - b. Novels.
        1. *Vanity Fair.*
        2. *Henry Esmond.*
        3. *Newcomers.*
        4. *Pendennis.*
        5. *Virginians.*
3. Characteristics.
    - a. Satire mixed with tenderness.
    - b. Realism.
    - c. Portrayal of society life.
    - d. Quaint, fresh style.

H. Robert Browning.

1. Life.
2. Poetry.
    - a. Monologues.
        1. My *Lost Duchess.*
        2. *Andrea del Sarto.*
        3. *Abt Vogler.*
    - b. Dramas.
        1. *Stafford.*
        2. *Blot on the Scutcheon.*
        3. *Pippa Passes.*
    - c. Narrative poems.
        1. *Saul.*
        2. *Ring and the Book.*
    - d. Short lyrics.
3. Characteristics.
    - a. Optimism.
    - b. Originality.
    - c. Force.
    - d. Analysis of character.
    - e. Power of rhythm and expression.
    - f. Obscure truths.

I. Alfred Tennyson.

1. Life.
2. Work.
    - a. Minor poems.
        1. *Palace of Art.*
        2. *Locksley Hall.*
        3. *Two Voices.*
        4. *Ulysses.*
        5. *Crossing of the Bar*, etc.
    - b. More important.
        1. *The Princess.*
        2. *Maud.*
        3. *Enoch Arden.*
        4. *Idylls of the King.*
        5. *In Memoriam.*
3. Characteristics.
    - a. Keen observations of nature.
    - b. Scientific knowledge in poetic form.
    - c. Triumphs over religious doubt.
    - d. Lyrical and narrative power.
    - e. Perfect verse form.

J. Other writers.

1. Charles Reade.
2. Charles Kingsley.
3. Bulwer-Lytton.
4. Charlotte Brontë.
5. James Froude.
6. Herbert Spencer.
7. Thomas Huxley.
8. Elizabeth Barrett Browning.

Questions and Suggestions.

Why does the historical background of this period make possible the variety of literature produced?

Which writers suffered most from religious doubt in this period? Which one never regained his faith?

Would Browning's naturally hopeful character be a reason for his escaping the period of doubt?

Read Pippa's song in *Pippa Passes* for an expression of Browning's faith.

Why are Carlyle and Browning considered spiritual tonics?

What does *Crossing the Bar* tell us of Tennyson's faith? Read *Idylls of the King* and report on class of poems, allegorical significance, beauty of thought, and expression?

Lycidas, Elegy Written in a Country Churchyard, Adonais, and *In Memoriam* are the four greatest elegies in the English language; give the author, occasion, plan, and rank of each poem.

Which one of Thackeray's novels is said to contain no hero? What one of Thackeray's characteristics does it contain?

Which of Dickens's novels is said to be the story of his own life? Illustrate Dickens's characteristics by this novel. Dickens's humor is often said to be grotesque; do you consider it so? Compare a character description in one of Dickens's novels with one in Thackeray's *Vanity Fair*. What is the difference?

Which of George Eliot's characters is supposed to be herself? Which her father and brother? What fault creeps into her later novels and how can you account for it? Read *Adam Bede* and *Mill on the Floss* and report on characteristics found in each.

Read Matthew Arnold's *Dover Beach*. What does the poem tell you of the writer's state of mind?

American Literature.

AMERICANISM, that sturdy pride in all that is worth while in self and country, early found expression in our literature. Even before the Revolution a certain force and fearlessness, totally unknown on English soil, began to be apparent in the literary expression of America. Within a half century after the adoption of the Constitution, the hills, valleys, and rivers of New York, the birds and flowers of the new land, the picturesque Indian, and even the early types of American men and women were familiar to the Old World through Irving and Cooper. American subject-matter, American spirited expression, American views on politics, religion, economics, and art have grown more and more steadily to make up the production of our writers and to give us a definite literature. When we consider that three centuries ago our land was a wilderness and that, together with all the work necessary to develop that wilderness into the present land of civilization, we have also created an individual literature we have just cause for pride in our nation.

The swiftness of this achievement, and the nearness in time of the great body of literary production, make it difficult to divide American literary history into periods, characterized as those of English literature are. It is quite possible that as time gives the distance necessary to get the true proportion the relative greatness of the writers will be readjusted, and the whole body of literature will be redivided. For that reason only most evident lines of divisions have been opened in the following outline. For the same reason it has been impossible to estimate the importance of the very recent, or present-day, writers. The proportions of time given to them must depend upon the judgment of the teacher, until time, the most just critic of all, gives each his place.

The pupil's initiative should be given full scope in the study of American literature. He should be made to feel a strong patriotic pride in the work, and that it is his place to prove the place of each writer to himself and to his classmates as a matter of individual interest. This can be done by the assignment of topics for reports to the class, by insisting on a wide reading of each writer's work, and by free discussion of the literary side of that work. The questions and suggestions for study are meant to bring out definitely certain points along this line of discussion. The adverse criticism, almost contempt of our claim to an individual literature by the older nations, should put the pupils into a defensive attitude to prove the contrary, but this proof must be based on just criticism which comes from a thorough knowledge of the thing criticised.

Colonial Period (1607-1765).

I. CHARACTERISTICS.
   A. No American background.
   B. Subject-matter of adventure, history, and religion.
   C. Growth, in last years, of national fearlessness of expression.

II. WRITERS.
   A. Captain John Smith.
   B. Increase and Cotton Mather.
   C. Roger Williams.
   D. Jonathan Edwards.
   E. Anna Bradstreet.
   F. Writer of *Bay Psalm Book.*

III. NEWSPAPERS.
   A. *Boston News Letters.*
   B. *Boston Gazette.*
   C. *New England Courant.*

Questions and Suggestions for Study.

The general class of subject-matter and ability of each of these writers should be known, although some of them are not American in birth or work.

An investigation of these early newspapers will prove of interest because of the men connected with them and the merit of the papers in themselves.

How can you account for the seriousness of the writers of this time?

What interest was developing in the latter part of the period that brought life into the later literature?

Did any of the writers of this period attract attention in Europe?

Contrast, briefly, the period of English literature, which covers the same time, with this early American period.

Revolutionary and Constitutional Period (1765-1790).

I. CHARACTERISTICS.
   A. Politics.
   B. Freedom.
   C. Controversy.
   D. Shrewdness.

II. PROSE.
   A. Oratory and politics.
      1. Thomas Jefferson.
      2. Alexander Hamilton.
      3. James Madison.
      4. John Jay.
      5. Thomas Paine.
   B. Philosophy.
      1. Benjamin Franklin.
         a. Life.
         b. Work.
            1. *Poor Richard's Almanac.*
            2. *Wise Speech of Father Abraham.*
            3. *Autobiography.*
         c. Characteristics.
            1. General truths.
            2. Practical wisdom.
            3. Clear, concise sentences.
            4. Humor.
         d. Place.
            1. Early type of Americanism in literature.
            2. First literature independent of passing events

Century of Creative Literature.

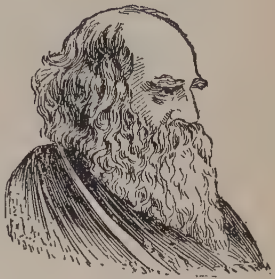
(1790-1890).

- I. EARLY NEW YORK GROUP.
  - A. Washington Irving.
    - 1. Life.
    - 2. Prose.
      - a. Early.
        - 1. *Knickerbocker History.*
        - 2. *Sketch Book.*
      - b. Results of foreign travel.
        - 1. *Bracebridge Hall.*
        - 2. *Tales of a Traveler.*
        - 3. *Life and Voyages of Columbus.*
        - 4. *Conquest of Granada.*
        - 5. *Alhambra.*
      - c. Results of American Travel.
        - 1. *Tours on the Prairies.*
        - 2. *Astoria.*
      - d. Miscellaneous later work.
        - 1. *Adventure of Captain Bonneville.*
        - 2. *Life of Washington.*
    - 3. Characteristics.
      - a. Spontaneity.
      - b. Humor.
      - c. Wholesome sentiment.
      - d. American atmosphere.
      - e. Simplicity of style.
    - 4. Place.
      - a. Popular with all classes.
      - b. Ranks with Addison and Steele.
      - c. Inventor of American short story with local background.
  - B. James Fenimore Cooper.
    - 1. Life.
    - 2. Work.
      - a. Novels.
        - 1. *Leatherstocking Tales.*
        - 2. *Sea Tales.*
        - 3. *The Spy.*
      - b. History.
        - 1. *History of United States Navy.*
    - 3. Characteristics.
      - a. Out-of-door adventure.
      - b. Idealization of characters.
      - c. American background and character.
      - d. Carelessness in style and sentence structure.
    - 4. Place.
      - a. Founder of American romance.
      - b. Source of material for history of pioneer life.
  - C. William Cullen Bryant.
    - 1. Life.
    - 2. Work.
      - a. Poetry.
        - 1. *Thanatopsis.*
        - 2. *Sella.*
        - 3. Lyrics and short poems.
        - 4. Translations.
      - b. Prose.
        - 1. Newspaper letters.
        - 2. Addresses.
    - 3. Characteristics.
      - a. Love of country.
      - b. Love of nature.
      - c. Stately, reserved verse form.
      - d. Temperate criticism.
    - 4. Place.
      - a. Leader of dignified cultured formalism.
      - b. Pioneer poet of American nature.
  - D. Fitz-Green Halleck and Rodman Drake.
- II. NEW ENGLAND GROUP.
  - A. Ralph Waldo Emerson.
    - 1. Life.
    - 2. Work.
      - a. Prose.
        - 1. Essays on morals, nature, and philosophy.
      - b. Poetry.
        - 1. *Threnody.*
        - 2. Short poems.
    - 3. Characteristics.
      - a. Noble ideals.
      - b. Short, clear, strong sentences.
      - c. Epigrams.
    - 4. Place.
      - a. Inspirer of youth.
      - b. Calm, sane priest of faith.
  - B. Nathaniel Hawthorne.
    - 1. Life.
    - 2. Work.
      - a. Stories and Legends.
        - 1. *Tanglewood Tales.*
        - 2. *Mosses from an Old Manse.*
        - 3. *Great Stone Face.*
      - b. Novels.
        - 1. *Blithedale Romance.*
        - 2. *Marble Faun.*
        - 3. *Dr. Grimshaw's Secret.*
        - 4. *The Scarlet Letter.*

William Cullen Bryant.

Report by Ella Norris.
Notes by Rachel Patten.

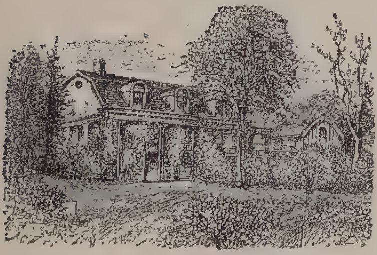
I. Early life.
  A. Parentage.
    1. Father.
      a Name—Peter Bryant.
      b. Occupation—Physician.
      c. Character.
        1. Fond of nature.
        2. Industrious.
        3. Careful and intelligent.
        4. Devoted much time to study.



W. C. Bryant.

    2. Mother.
      a. Name—Sarah Snell.
      b. Descended from the Pilgrims.
      c. Character.
        1. Modest housewife.
        2. Well educated.
        3. Helped to teach him.

  B. Education.
      a. Studied at Williams College.
      b. Began to write verses in 1802.
      c. Left school in 1812 to study law.
  C. Life work and achievements.
      a. Practiced law at Plainfield.
      b. Became editor of the New York Review in 1825.
      c. Famous as editor and writer.
      d. Noted as poet and orator.



Cedarmere.

Bryant's country-house at Roslyn, Long Island, was called Cedarmere.

BLACKBOARD LESSON.

- 3. Characteristics.
  - a. Imaginative insight.
  - b. Dramatic intensity.
  - c. Romantic background.
  - d. Moral problems.
  - e. Brilliant, easy style.
- 4. Place.
  - a. Foremost writer of American fiction.

C. Henry Wadsworth Longfellow.

- 1. Life.
- 2. Work.
  - a. Prose.
    - 1. *Hyperion.*
    - 2. *Outre-Mer.*
    - 3. *Kavanaugh.*
  - b. Poetry.
    - 1. Narrative poems.
      - a. *Evangeline.*
      - b. *Miles Standish.*
      - c. *Hiawatha.*
    - 2. Dramatic poems.
    - 3. Ballads and lyrics.
    - 4. Translations.
- 3. Characteristics.
  - a. Vigorous sympathy.
  - b. Healthy mind.
  - c. Faith in mankind.
  - d. Simplicity and grace of style.
- 4. Place.
  - a. Most popular American poet.
  - b. Children's poet.

D. John Greenleaf Whittier.

- 1. Life.
- 2. Work.
  - a. Short poems.
    - 1. On slavery and religion.
    - 2. Legendary ballads.
  - b. Long poems.
    - 1. *Snow-Bound.*
    - 2. *Tent on the Beach.*
- 3. Characteristics.
  - a. Democracy.
  - b. Genuine sincerity.
  - c. Vigorous freedom.
  - d. Poetic imagination.
  - e. Poems of song.
- 4. Poet of the people.

E. Oliver Wendell Holmes.

- 1. Life.
- 2. Work.
  - a. Prose.
    - 1. Essays.
      - a. *Breakfast Table Scenes.*
      - b. *Over the Teacups.*
      - c. *One Hundred Days in Europe.*
    - 2. Novels.
      - a. *Elsie Venner.*
      - b. *Guardian Angel.*
      - c. *A Mortal Antipathy.*
    - 3. Poetry.
      - a. *Chambered Nautilus.*
      - b. *Dorothy Q.*
      - c. *One Hoss Shay.*
      - d. Shorter poems.
- 3. Characteristics.
  - a. Forcible intelligence.
  - b. Wit and shrewdness.
  - c. Charity.
  - d. Easy, graceful prose.
- 4. Place.
  - a. A sage, humorous philosopher.

F Henry David Thoreau.

- 1. Life.
- 2. Prose.
  - a. Essay on philosophy and nature.
    - 1. *Walden.*
    - 2. *Excursion.*
    - 3. *Spring*, etc.
- 3. Characteristics.
  - a. Philosophy of simple living.
  - b. Humor.
  - c. Cynicism.
  - d. Direct, concise sentences.
  - e. Poetic phrasing.
- 4. Place.
  - a. With Izaak Walton.

G. James Russell Lowell.

- 1. Life.
- 2. Work.
  - a. First period; poetry.
    - 1. *The Present Crisis.*
    - 2. *The Biglow Papers.*
    - 3. *Vision of Sir Launfal.*
    - 4. *Fable for Critics.*
  - b. Second period.
    - 1. Poetry.
      - a. *Biglow Papers* (Second series).
      - b. *Commemoration Ode.*
    - 2. Prose (Essays).
      - a. *Fireside Travels.*
      - b. *Among My Books.*
      - c. *My Study Windows.*
  - c. Third period.
    - 1. Poetry.
      - a. *Hearts-ease and Rue.*
    - 2. Prose.
      - a. *Addresses and Essays.*
- 3. Characteristics.
  - a. Love of nature.
  - b. Tenderness.

    - c. Humor.
    - d. Insight.
    - e. Broad scholarship.
  - 4. Place.
    - a. Best example of critic and poet combined.
- H. Francis Parkman
  - 1. Life.
  - 2. Work.
    - a. *Oregon Trail.*
    - b. *France and England in America.*
    - c. *History of the Conspiracy of Pontiac.*
  - 3. Characteristics.
    - a. Outdoor adventure.
    - b. Accuracy.
    - c. Freshness and beauty of style.
  - 4. Place.
    - a. Among foremost historians.

III. SOUTHERN WRITERS.

- A. Edgar Allan Poe.
  - 1. Life.
  - 2. Work.
    - a. Prose.
      - 1. Detective stories.
        - a. *Murders of the Rue Morgue.*
        - b. *The Purloined Letter.*
      - 2. Analytical tales.
        - a. *Gold Bug.*
      - 3. Moral allegory.
        - a. *The Black Cat.*
        - b. *The Tell-Tale Heart.*
      - 4. Supernatural stories.
        - a. *Fall of House of Usher.*
    - b. Poetry.
      - 1. *The Raven.*
      - 2. *The Bells.*
      - 3. *Annabel Lee.*
      - 4. *Israfal,* etc.
  - 3. Characteristics.
    - a. Prose.
      - 1. Morbid imagination.
      - 2. Lack of characterization.
      - 3. Humor without pathos.
      - 4. No humor.
      - 5. Charm of swift, strong impression.
    - b. Poetry.
      - 1. Artificial.
      - 2. Vague subject-matter.
      - 3. Imperishable beauty of verse form and expression.
  - 4. Place.
    - a. Inventor of American detective stories.
    - b. Master of beauty in verse.
    - c. Similar position in poetic field to Coleridge.
- B. Sidney Lanier.
  - 1. Life.
  - 2. Works.
    - a. Prose.
      - 1. Boys' stories.
      - 2. Lectures on prose and poetry.
    - b. Poetry.
      - 1. *Ballad of the Trees and the Master.*
      - 2. *Marshes of Glynn.*
      - 3. Other narrative and lyric poems.

    3. Characteristics.
        1. High ideals.
        2. Refined, melodious verse.
        3. Beauty.
    4. Place.
        1. Preacher of art in life.

IV. OTHER WRITERS.
- A. Harriet Beecher Stowe
- B. Daniel Webster.
- C. George Bancroft.
- D. William Prescott.
- E. Walt Whitman.
    - 1. Life.
    - 2. Works.
        - a. Prose.
            - 1. *Specimen Days.*
            - 2. *Democratic Vistas.*
            - 3. *Backward Glance O'er Travel'd Roads.*
        - b. Poetry.
            - 1. *Leaves of Grass.*
    - 3. Characteristics.
        - a. Confusion of subject-matter.
        - b. Frequent coarseness.
        - c. Democracy.
        - d. Out-of-door life and energy.
        - e. Suggestiveness.
    - 4. Place.
        - a. Poet, portraying the average man.

Present-Day Period.

I. EASTERN GROUP.
- A. Thomas Bailey Aldrich.
- B. Emily Dickinson.
- C. E. C. Stedman.
- D. John Burroughs.
- E. Henry James.
- F. Mary Wilkins.
- G. Francis Richard Stockton.
- H. William D. Howells.

II. WESTERN GROUP.
- A. Joaquin Miller.
- B. James Whitcomb Riley.
- C. Helen Hunt Jackson.
- D. Bret Harte.
- E. Mark Twain.
- F. Eugene Field.
- G. William Jennings Bryan.
- H. Ella Wheeler Wilcox.

III. SOUTHERN GROUP.
- A. F. Hopkinson Smith.
- B. George W. Cable.
- C. James Lane Allen.

Questions and Suggestions on the Revolutionary and Constitutional Period. Creative Period. Present-Day Period.

Reports giving the chief discussion to the speeches of the men under *Oratory and Politics* should be given to the class, with enough of the events of their lives to review them for the pupils. The reports should bring out the characteristics of the period in their writings.

The writing in America had been on the events of the day, until the time of Franklin. Explain how his was not and yet is considered one of the strongest influences in forming our nation.

Select passages from the *Knickerbocker History* and the *Sketch Book* to illustrate Irving's characteristics. Compare Irving's and Addison's sketches on Westminster Abbey.

What criticism is to be found against Cooper's Indians? Why are Cooper's writings romances rather than novels? Read *The Spy* and *Last of the Mohicans* and select definite passages to illustrate Cooper's characteristics, and to prove his claims to being the founder of American romance.

Why does Bryant's *Yellow Violet* mark the beginning of an epoch in American literature? Select a short quotation in *Sella* which sums up the lesson taught. In comparing Bryant's earliest works with his last, what peculiar fact is evident? For what newspaper did Bryant write?

What one poem makes the fame of Halleck and Drake?

Compare Emerson and Franklin in their Americanism. Illustrate by reading passages from each.

Prepare a report on the Brook Farm.

What is Transcendentalism? Explain this term in connection with Emerson and his friends.

Contrast Carlyle and Emerson in life, character, and writing; compare and illustrate the last mentioned from the work of each.

Bring epigrams from Emerson to the class that will illustrate his characteristics.

What did Hawthorne do for New England which Irving had done for New York? Read *Great Stone Face* for an example of imaginative insight of Hawthorne. Read to the class chapters from *Marble Faun* illustrative of dramatic intensity and of romantic background; have these passages reproduced by the pupils with the attempt on their part to retain the same characteristics. Trace by graphic the development of one of Hawthorne's characters.

What poem brought Longfellow his first real recognition? Why are his three long narrative poems of importance in the history of American literature? Why is Longfellow called the Children's Poet? Illustrate his characteristics from *Evangeline*. Why does *Hiawatha* stand alone in its place in American literature?

Compare Whittier and Franklin. Read Whittier's poem *Democracy* and show how the principles advocated would make him take his stand against slavery. Why is *Snow-Bound* famous?

Do the indications to-day show which field of Holmes's work will be most lasting? With whom could you compare him in English literature? Which group of his work most clearly shows his humor? His intelligence in scientific matters? His high ideals?

Why is a complete understanding of Thoreau's character necessary to understand his place in literature? What would be the effect upon man in general if his philosophy of life was adopted?

Read *Walden* and illustrate Thoreau's characteristics from several passages. Compare portions of it with Walton's *The Complete Angler.*

What different sides of Lowell's nature were illustrated by *Biglow Papers* and *Vision of Sir Launfal?* What two of his characteristics indicate his ability as a literary critic?

Read one poem or story from each of Poe's fields of work and illustrate his characteristics by them. Is there any allegorical meaning to you in *The Raven?* Is Poe's fame increasing or decreasing?

Why is Harriet Beecher Stowe's *Uncle Tom's Cabin* of sufficient importance to win her a place for all time?

What one thing brought fame to Daniel Webster?

Why is Walt Whitman's place in literature so unsettled? What qualities of his work could form a basis for his future fame? What makes the foundation for the criticism against him?

Why is it impossible to give a place to the writers of the Present-Day Period? Which ones seem to you most likely to hold a foremost place in the final adjustment and why? What group of writers shows most clearly the development of literature in the United States?

Canadian Literature.

NO nation can be truly great unless it is great in art and literature. The shores of history are strewn with the wrecks of peoples who devoted their energies to the more selfish task of amassing wealth and accumulating territory, but who neglected "the weightier matters of the law." China, with its vast area and countless millions, has had no share in the recent progress of civilization, while the small country of Greece, through her glorious achievements in poetry and the drama, in sculpture and architecture, has been, since the days of Plato, a potent vivifying force in the world's life.

Canada, "the heir of all the ages," has laid to heart this lesson of the centuries and from her earliest dawn we see many evidences of that interest in things of the mind which is the surest sign of real nationhood. Even while the silent savage was still stealing through the pathless forest on his errand of vengeance and while "Our Lady of the Snows" saw her white meadows traversed only by the fearless hunter, the early French explorers had taken pen in hand to record their marvelous achievements in this new land of wonder; and later, under early British rule, when wealth and leisure were still rare among the few members of that limited society, the poet found a place and the sweet strains of Canadian verse mingled with the crash of falling trees and the loud call to arms.

In a survey of a national literature it is of highest importance that we get the true viewpoint. Those who expect of Canada at this stage a second Dante or Shakespeare are forgetting that literature is only the outward expression of a people's inner life; it is the mirror of the nation's character. Not more surely does the placid river reflect the image of the boughs that overhang its crystal waters than does the literature of a people reveal their tastes and customs, their pleasures and follies, their hopes and aspirations, their glories and achievements.

And so, here in "this wide northern land," with the work of the pioneer still fresh in the memory of all and, indeed, still going on in many parts of this broad Dominion, the critic should not look for monumental efforts of genius such as Europe, rich in tradition, learning and culture, has given to the world at Rome, Paris, Berlin and London. No, we should be satisfied with a native Canadian literature "racy, of the soil"; verse that breathes forth the very odor of fresh-ploughed fields and pine forests; and history that records simply but vigorously the labors of the farmer, explorer, soldier, merchant and scholar. The maple may not be as stately as the palm, but at least it is Canada's own. Such a native literature Canada has and it is of such that we give here a brief survey.

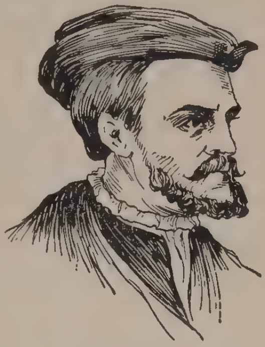
Divisions of Canadian Literature.

A. Early French Writers, 1536-1763.
B. Later French Writers, 1841 to the present.
C. British Canadian Writers, 1841 to the present.

The field of Canadian literature is naturally marked off into three sections as above. The early outburst was succeeded by a long silence, as Canada was busy with war, immigration, and an extended political struggle. Then came a second bloom of French writers and with it, as Upper Canada and Nova Scotia emerged from the first pioneer stage, developed a vigorous growth of British Canadian literature, chiefly in poetry and history.

A. EARLY FRENCH PERIOD:

Jacques Cartier, the first French explorer, left an account of his voyage published in France in 1536 and translated into English in 1580; an account of his second voyage was published in 1545.



JACQUES CARTIER.

Champlain in his *Des Savauges; or, Voyage de Samuel Champlain,* gave a record of his first voyage. The work was published in 1604 and later accounts also appeared in 1613 and 1632.

Marc L'Escarbot, a Paris lawyer, who, like the hero of *Locksley Hall,* was disgusted with the Old World, bequeathed to us interesting glimpses of life at Port Royal in the period from 1603 to 1609. His book, *Histoire de la Nouvelle France,* appeared in 1609, and is remarkable for the first Canadian verse which it contains. L'Escarbot may be termed the Father of Canadian Poetry.

Father Sagard, a Jesuit Priest, wrote an account of the missions among the Indians in 1632, and a number of Jesuits produced the first church history under the title *Relations des Jesuites, 1632-1679,* which is a connected account of the devoted labors of the Jesuits during these stormy years.

Louis Hennepin, Christian Le Clerq, Le Baron and La Hontan left accounts of their voyages, while Xavier de Charlevoix, in his *Histoire de la Nouvelle France,* published in 1774, gives us a concise account of French rule to that date.

B. LATER FRENCH WRITERS:

The "still small voice" of the poet and historian was now hushed or unheard for about eighty years. Then we have a long roll of historians, for the serious Canadian nature seemed to have turned first to history. Maximilian Bibaud, François Xavier Garneau and Abbé Ferland wrote on the history of Canada, Garneau's work being recognized as the best French-Canadian history. Joseph Tasse, the author of *French Pioneers of the West,* L. O. David, who wrote *Histoire de Quebec,* as well as Benjamin Sulte and Antoine Gerin Lajoie continued to reap the rich harvest of early French exploration, settlement and valor.

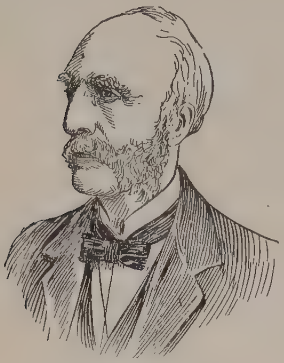
Among the novelists may be mentioned Joseph Marmette, Philip Aubert de Gaspe, Pierre Chauveau, Henri Bourassa and Napoleon Légendre, all of whom produced works that were read with interest on both continents.

The line of poets never becomes extinct, and a large number of French Canadian versifiers appear in this period. Michel Bibaud, Garneau, Lajoie, L. P. Le May, Octave Cremazie, Benjamin Sulte and Louis Fréchette produced bright and graceful verse which reflects the polish, wit and perennial gaiety of old France. By common consent Fréchette is the greatest of them all. His *Mes*

Loisirs, Les Fleurs Boreales and *Les Oiseaux de Neige* won for him the laurel crown from the hands of the French Academy.

C. BRITISH CANADIAN WRITERS:

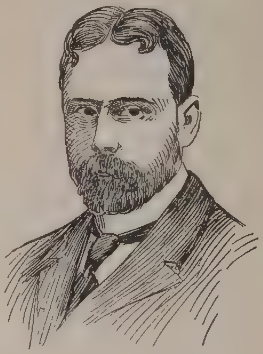
Turning to British Canada, we find a wealth of literature, almost all of which has appeared since the Union of 1841. A survey shows us that it is to history, fiction and poetry that the minds of Canadians have chiefly turned; mingled with these is a little science. philosophy and essay-writing.



GOLDWIN SMITH.

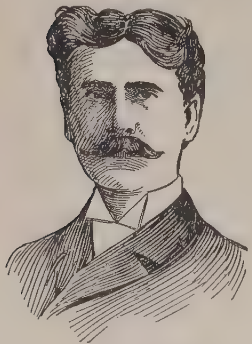
Among the historians, the chief writers are Eliot Warburton, William Kingsford, James Hannay, Joel C. Haliburton, Goldwin Smith, W. D. LeSeur, John G. Bourinot, John George Hodges, John Miller, George Bryce, John Charles Dent, Henry Withrow, Henry J. Morgan and George M. Wrong. Of these Kingsford's *History of Canada* in ten volumes, Goldwin Smith's *Canada and the Canadian Question* and Wrong's *British Nation* are perhaps the most conspicuous.

In fiction some good work has been done and many Canadian novels have enjoyed a wide popularity in Great Britain and the United States, as well as in Canada. Possibly the five greatest Canadian novels are: Haliburton's *Sam Slick,* John Richardson's *Wacousta,* John L'Esperance's *Les Bastonnais,* Kirby's *Chief D'Or* and Gilbert Parker's *Seats of the Mighty.* Other novelists of repute include Agnes Maule Machar, Agnes Laut, Charles G. D. Roberts, Ralph Connor (Rev. C. W. Gordon), W. A. Fraser, Harvy O'Higgins and Bliss Carman.



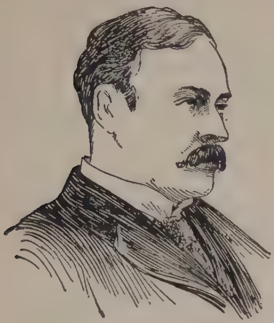
GILBERT PARKER.

Ernest Thompson-Seton, the author, artist and naturalist, has written many very interesting books on nature and animal life. He served many years as naturalist to the province of Manitoba and studied wild life throughout the west, lecturing and writing extensively in the meantime. His *Wild Animals I Have Known,* published in 1898, is one of his best known books. Other works include *Lives of the Hunted, The Biography of a Grizzly, The Trail of a Sand-Hill Stag, Two Little Savages, Animal Heroes* and *Monarch, the Big Bear of Talloe.*



ERNEST THOMPSON-SETON.

In poetry there has been a rich and varied harvest of verse. The wonderful natural beauties of Canada which, like Scotland, may be fairly called "Meet nurse for a poetic child" seem to have awakened and nourished the love of poetry, and we have a flood of Canadian song, much of which is of a high order. though, as in every country, mere versifiers without the touch of genius are mingled with the rarer writers within whose hearts there burns the true fire of inspiration.


WILLIAM H. DRUMMOND

Amid so much genuine merit it is invidious to choose, but we may venture to say that Charles Roberts, Archibald Lampman, Bliss Carman, Theodore H. Rand, Wilfrid Campbell and Isabella Crawford are the poets whom coming ages will place highest on the roll of fame. Others deserving mention include: Charles Heavysege, John Reade, John Stuart Thomson, Charles Mair, Duncan C. Scott, Frederick C. Scott, William Henry Drummond, Agnes Maule Machar (Fidelis), J. W. Bengough, Edward Hartley Dewart, Alexander McLachlan, Jean Blewett, Charles P. Mulvaney, Ethelwyn Wetherald, Pauline E. Johnson, Robert Barr and Robert W. Service.

With such an array of bards we close this view of Canada's national literature. The native born Canadian may well regard the list with pride. But it is, after all, to the future that the Canadian looks. "The twentieth century is Canada's," Sir Wilfrid Laurier, the eloquent ex-premier of Canada, has declared. And while this ringing prophecy is usually applied to the realms of finance, commerce and industry, it will be even truer of the higher and loftier realms of art and literature.

The people in whose blood runs the Saxon courage and perseverance mingled with Celtic grace and fire, a people hardy and vigorous enough to endure the severities of a northern climate, a people whose educational system is excelled by none, may be counted on to produce the highest type of work in art and literature.

"What past can match thy glorious youth,
Fair Canada of ours!"

Selections from Canadian Literature.

Canada's Future.

Isabella Valancy Crawford (1851-1887), ranked as the truest Canadian poet by some, contributes to the national feeling in this manner:

How sounds my voice my warrior kinsman now?
Sounds it not like to thine in lusty youth—
A world-possessing shout of busy men,
Veined with the clang of trumpet and the noise
Of those who make them ready for the strife,
And in the making ready bruise its head?
Sounds it not like to thine—the whispering vine,
The robe of summer rustling through the fields,
The lowing of the cattle in the meads,
The sound of commerce and the music-set,
Flame-brightened step of art in stately halls,
All the infinity of notes which chord
The diapason of a nation's voice.

Charles Sangster (1822-1893) may be quoted as contributing happy sentiments to the national spirit:

Health smiles with rosy face
Amid our sunny dales,
  And torrents strong
  Fling hymn and song
Through all the mossy vales;
Our sons are living men,
Our daughters fond and fair,
  A thousand isles
  Where plenty smiles
Make glad the brow of care.

Alexander McLachlan (1818-1896), in *Lyrics,* published in 1858, sings of manhood and the spirit of freedom:

I'll seek the northern woods she cried (Genius of Canada)
  Tho' bleak the skies may be.
The maple dells where freedom dwells
  Have special charms for me.

For moral worth and manhood there
  Have found a favoring clime,
I'll rear a race for long to grace
  The mighty page of time.

Edward Hartley Dewart (1828-1903), in his *Songs of Life,* rises to the occasion of well written verses on future greatness:

Give joy a tongue, let peaceful mirth
  Dispel all faithless fears,
We hail a youthful nation's birth
Who in the wondering eyes of earth
  Takes rank among her peers.

Fling out our banner to the breeze
  And proudly greet the world
With words of amity and peace:
For never on more halcyon seas
  Was freedom's flag unfurled.

For though the past has records few
  Of battle song and story
The future rises fair to view,
Gleaming with morning's youthful dew
  And bright with coming glory.

Canadian Scenery.

Sir J. D. Edgar (1841-1899) writes in this manner in his *Campings:*

A white tent pitched by a glassy lake
    Well under a shady tree,
Or by rippling rills from the grand old hills
    Is the summer home for me.

I fear no blaze of the noontide rays
    For the woodland glades are mine,
The fragrant air and the perfume rare
    The odor of forest pine.

The wild woods, the wild woods,
    The wild woods give to me,
The wild woods of Canada,
    The boundless and the free.

Edward Hartley Dewart, in his *Ode to Canada,* sings as follows:

I love thy green and towering hills,
    Thy valleys rich and fair;
Where wealth in pearly dew distils
The cool meandering forest rills
    Hid from the summer glare.

I love thy rivers, broad and free,
    Thy cataracts sublime;
Where God unveils his majesty
Whose hymns make grandest melody
    That strikes the ear of time.

I love when autumn's brilliant dyes
    Thy forest foliage stain,
And nature yields her rich supplies;
I love when winter's ermine lies
    On river, wood and plain.

The following is an extract from Dewart's *Snowflakes:*

Softly the fragile ermine snowflakes fall
From the dim cloud-land of their airy birth,
They come to shroud the naked, shivering earth
Like heaven's vast love which crowns and covers all.
They whirl and dance through all the frosty air—
On lakes and rivers fall and melt unseen;
Each branching spray receives an ample share
Till woods are fairer than in summer green.

Agnes Maule Machar (Fidelis), the Kingston poet, writes:

In winter robes of virgin snow,
    We proudly hail thee ours;
We crown thee when the south winds blow,
    Our lady of the flowers.

We love the rainbow-tinted skies,
    The mystic charm of spring;
For us thine autumn gorgeous dyes,
    For us thy songbirds sing.

God bless our own Canadian land
    Of mountain, lake and river,
Whose loyal sons from strand to strand
    Sing "Canada forever."

John Wilson Bengough (born in 1851), one of our most graceful versifiers, gives us a glowing tribute to Canadian rivers in a poem entitled *Unity Day:*

A thousand streamlets, 'neath the auroral light
Of the far silent north, shine as they wend
And waver southward; from the sunset west
A thousand more down from the mountains glance
And wander o'er the prairie deviously
In lonely course till here and there they meet
And kiss and join their waters into one
And stronger flow toward the eastern lake,
Mingling with joy of dancing wave; then on
In the new power of river lordlier grown,
With every league of way to lordlier lake
Now swelled to wind-swept sea; thence on again
Alternate lake and river, through the gorge
Where echoes that have rung since time began
Still roar amazement at the wondrous fall
That awes the world; still eastward past the isles
The thousand emeralds scattered in the stream
To show God's boundless bounty—on and on
In the majestic sweep of deep clear flood,
Past stately cities, peaceful, sloping farms
And villages that seem to kneel in prayer;
A river of imperial renown,
Named with an almost sacred reverence,
    Our glorious Saint Lawrence.

Poems of Truth and Life.

Archibald Lampman (1861-1899), perhaps the greatest of the Ontario poets, in *The Truth,* reaches a high plane of eloquence:

Friend, though thy soul should burn thee, yet be still.
Thoughts were not made for strife, nor tongues for swords.
He that sees clear is gentlest of his words,
And that's not truth that has the heart to kill.
The whole world's thought shall not one truth fulfill.
Dull in our age and passionate in our youth,
No mind of man hath found the perfect truth
Nor shall thou find it; therefore, friend, be still.
Watch and be still nor hearken to the fool,
The babbler of consistency and rule;
Wisest is he who, never quite secure,
Changes his thoughts for better day by day.
To-morrow some new light will shine, be sure,
And thou shalt see thy thought another way.

Charles Roberts (born in 1860) in his poem, *The Dignity of Man,* rises to lofty heights in the field of poetry:

In the wide awe and wisdom of the night,
I saw the round world rolling on its way,
Beyond significance of depth or height,
Beyond the interchange of dark and day.
I marked the march to which is set no pause,
And that stupendous orbit round whose rim
The great sphere sweeps, obedient unto laws
That utter the great eternal thought of him.

I compassed time, outstripped the starry speed,
And in my still soul apprehended space,
Till weighing laws which these but blindly heed
At last I came before him, face to face;
And knew the universe of no such span
As the august infinitude of Man.

George Frederick Cameron (1854-1885), in his *True Greatness,* happily writes of the beauty of peace and home life:

What is true greatness? Question not,
But go to yon secluded spot,
And enter yonder humble cot,
And find a husbandman who never fought
Or wronged his kind;
For whom the lips of war are dumb:
Who loves far more than beat of drum
The cattle's low, the insect's hum in air
And finds true greatness in its sum
And total there.

Archibald Lampman, in his sonnet *On Knowledge,* gives us a beautiful picture of life:

What is more large than knowledge and more sweet?
Knowledge of thought and deeds, of rights and wrongs,
Of passions and of beauties and of songs;
Knowledge of life; to feel its great heart beat
Through all the soul upon her crystal feet;
To see, to feel, and evermore to know;
To tell the old world's wisdom till it grow
A garden for the wanderings of our feet.
O for a life of leisure and broad hours
To think and dream, to put away small things,
This world's perpetual leaguer of dull naughts;
To wander like the bee among the flowers,
Till old age find us weary, feet and wings
Grown heavy with the gold of many thoughts.

Miscellaneous Poems.

Here is a characteristic Canadian scene from the poetical pen of Pauline E. Johnson (1862-1913), the Indian poet:

At husking time the tassel fades
To brown above the yellow blades,
Whose rustling sheath,
That bursts its chrysalis in scorn
Longer to lie in prison shades.

Among the merry lads and maids,
The creaking ox-cart slowly wades
Twixt stalks and stubble, sacked and torn,
At husking time.

The prying pilot crow persuades
The flock to join in thieving raids;
The sly raccoon with craft unborn
His portion steals; from plenty's horn
His pouch the saucy chipmunk lades
At husking time.

Archibald Lampman gives us this picture of autumn:

I see the wood-wrapt city, swept with light,
The blue long-shadowed distance and between
The dotted farm-lands with their parcelled green,
The dark pine forest and the watchful height.
I see the broad rough meadow stretched away
Into the crystal sunshine, wastes of sod,
Acres of withered vervain, purple-gray,
Branches of aster, groves of goldenrod;
And yonder towards the sunlit summit strewn
With shadowy boulders, crowned and swathed with weed
Stand ranks of silver thistles, blown to seed,
Long silver fleeces, shining like the moon.

Margaret Currie, the New Brunswick poet, writing of her favorite river, Saint John, sings thus:

The broad round-shouldered giant Earth
Upbears no land more sweet
Than that whereon in childish mirth
Went free my childish feet;
No fairer river furroweth
With its strong steel-blue share
Than that which floweth there.

Now that the green is on the plain,
The azure in the sky,
Wherewith clear sunshine after rain
Decketh the rich July;
Broad is the leaf and bright the flower;
Close to the pale gray sands
Coarse alder grows and virgin's bower
Grasps it with slender hands.

With honeysuckles, meadow-sweets
And rue the banks are lined
O'er wide fields dance gay marguerites
To pipe of merry wind,
By the tall tiger-lily's side
Stands the rich goldenrod,
A king's son wooing for his bride
The daughter of a god.

Richard Huntington, the Acadian poet, and editor for thirty years of the *Yarmouth Tribune,* sings of the river Tusket in Nova Scotia as follows:

Glows in the kindling east a blush,
Morn's old and immemorial flush;
Afar the distant Tusket's rush

Is heard, in muffled murmur deep,
As past green isle and headland steep
Its eddying waters seaward sweep.

Morn's steps advance, and lo! the west
Hath dawned a new and glorious vest
Of purple and of amethyst.

Joseph Foran (born in 1857), a Montreal journalist, thus speaks of our northern skies in winter:

In the north, behold a flushing,
Then a deep and crimson blushing,
Followed by an airy rushing
    Of the purple waves that rise!
As when armėd host advances,
See a silver banner dances
And a thousand golden lances
Shimmer in the boreal skies—
    The vision slowly dies!

Pauline Johnson, the Indian poet, portrays the beauties of a Canadian rapids:

And oh, the river runs swifter now;
The eddies circle about my bow
    Swirl, swirl,
How the ripples curl
In many a dangerous pool!

And forward for the rapids' roar,
Fretting their margin forever more!
    Dash, dash,
With a mighty crash,
They seethe and boil and bound and splash.

Archibald Lampman, singing of June, tells us of the beauties seen in the growing season:

Gone are the wind-flower and the adder-tongue
And the sad drooping bell-wort, and no more
The snowy trilliums crowd the forest floor;
The purpling grasses are no longer young,
    And summer's wide set door,
O'er the thronged hills and the broad panting earth,
Lets in the torrent of the later bloom,
Haytime and harvest and the aftermath,
The slow soft rain, the rushing thunder-boom.

William Douw Lighthall (born in 1857), a Montreal lawyer, voices his pride in our lovely maples thus:

Rome, Florence, Venice—noble, fair and quaint
They reign in robes of magic round me here;
But fading, blotted, dim, a picture faint
With spell more silent only pleads a tear.
Plead not, thou hast my heart, O picture dim!
I see the fields, I see the autumn hand
Of God upon the maples! Answer him
With weird translucent glories, ye that stand
Like spirits in scarlet and amethyst!
I see the sun break over you; the mist
On hills that lift from iron bases grand
Their heads superb!—the dream, it is my native land.

Robert Reid writes in this manner of the mountains:

Sing me the night of her giant mountains
Bring their brows in the dazzling blue,
Changeless alone where all else changes,
Emblems of all that is grand and true;
Free as the eagles around them soaring,
Fair as they rose from their Maker's hand,
Shout till the snow-caps catch the chorus—
The white-topped peaks of our mountain land.

Writing or a sudden frost following a thaw, Charles G. D. Roberts gives us this exquisite picture:

The silver saplings bending
Flashed in a rain of gems,
The statelier trees attending
Blazed in their diadems.
White fire and amethyst,
All common things had kissed,
And chrysolites and sapphires
Adorned the bramble stems.

William Wilfrid Campbell (born in 1861) pays his tribute to Thunder Cape:

Storm-beaten cliff, thou mighty cape of thunder,
Rock-Titan of the north whose feet the waves beat under:
Cloud-reared, mist-veiled, to all the world a wonder,
Shout out in thy wild solitude asunder,
O Thunder Cape, thou mighty cape of storms!

Burton Lockhart (born in 1850), the Nova Scotia poet and later a minister in New Hampshire, U. S., thus praises the Gaspereau:

Do you remember, dear, a night in June
So long, so long ago,
When we were lovers wandering with the moon
Besides the Gaspereau?

The river plashed and gurgled through its glooms
Slow stealing to the sea,
A silver serpent; in the apple blooms
The soft air rustled free.

And o'er the river from afar the sound
Of mellow tinkling bells,
From browsing cattle stirred the echo round
In gentle falls and swells.

Bliss Carman (born in 1861), the journalist and poet of New Brunswick, touches many phases of interest in his extensive writings. The following from *The Joys of the Road* is characteristic of his beautiful thoughts on life and kindred subjects:

And oh the joy that is never won,
But follows and follows the journeying sun,
By marsh and tide, by meadow and stream,
A will-o'-the-wind, a light-o'-dream,
Delusion afar, delight anear,
From morrow to morrow, from year to year,
A jack-o'-lantern, a fairy fire,
A dare, a bliss, and a desire!

. . . .

The broad gold wake of the afternoon;
The silent fleck of the cold new moon
The sound of the hollow sea's release
From stormy tumult to starry peace;
With only another league to wend,
And two brown arms at the journey's end:

These are the joys of the open road—
For him who travels without a load.

William Kirby (1817-1906), publisher of the Niagara *Mail,* is a well known writer of prose and poetry. His best work in prose is *The Golden Dog,* which has been read extensively beyond the borders of Canada. In his *Pontiac* he writes of the Niagara River:

> The broad majestic river full of light
> Flowed past in silence—where alone was heard
> The refluent eddy, lapping on the rocks
> Of narrow footing underneath the cliffs.

In his *Stoney Creek* he writes of Lake Ontario:

> Where Lake Ontario lays his stately head
> In the broad lap of hills, that stretch away
> To the long slopes of Flamboro', forest clad
> With oak and beach, and many a spiry pine
> Fast rooted to the crags.

He writes of men:

> Alas! if God's or woman's love should cease
> Because of faults in men! Then lost, indeed,
> Were he, without a hope to gild his lot!

Questions.

Into how many general divisions is Canadian literature divided? Name them.

Who is known as the "Father of Canadian poetry"?

Along what particular lines is the native Canadian literature written? How does it reveal the character of the people?

Mention three writers of history. Whose work is recognized as the best?

Mention five great novelists and their masterpieces.

Give a list of the leading poets of Canada. What can you say of Fréchette and his writings?

Why does the maple hold such a prominent place in Canadian literature?

What characteristics of life are revealed in the writings of Pauline E. Johnson?

Rehearse some traits of the life of Champlain as revealed in his stories of voyage and adventure.

Give a brief account of the work of the Jesuits in the early days among the Indians as recorded by Father Sagard.

Name the most conspicuous works of Canadian history.

Give a list of the writings of Ralph Cannon.

What can you say of the outlook for Canada's future along literary lines?

Who are some of the famous writers of biography?

Which are considered the nature poets of Canada?

GEMS OF LITERATURE

A choice list of beautiful selections from the noted authors, scholars, and statesmen is given for use in the home, school, and society. This collection is classified with reference to the leading topics of interest, such as Affection, Beauty, Character, Culture, etc. This arrangement renders it easy for the orator, student, and writer to find the particular quotations which are desired to embellish the subject that is treated. Letter writers, teachers, and members of clubs will find these collections invaluable.

Emerson said, "Next to the originator of a good sentence is the first quoter of it." This thought is well illustrated by those who enforce what they say or write when they beautify their language with a quotation from the choicest of literature. The student should refer to the biographies of the writers from whom quotations are made. Under each topic are about twenty selections, giving a large number of both authors and sentiments for easy use and reference.

AFFECTION

Even in the darkest hour of earthly ill
Untarnished yet my fond affection glows,
Throbs with each pulse and beats with every thrill.

—Byron.

Oh! cast thou not
Affection from thee! In this world,
Hold to thy heart that only treasure fast;
Watch, guard it,—suffer not a breath to dim
The bright gem's purity.

—Hemans.

Barren as sea-sand is every ambition—
Pride proves of clay when its feet are revealed;
Only affection brings joy's full fruition—
O love that will triumph! O life that must yield!

—Rossiter Johnson.

Great men cultivate love, and only little men cherish a spirit of hatred.

—Gen. Armstrong.

One hour with thee!—When burning June
Waves its red flag at pitch of noon,
What shall repay the fruitful swain
His labor on the sultry plain:
And more than cave or sheltering bow,
Cool feverish blood and throbbing brow?
One hour with thee.

—Walter Scott.

Actions, not words, are the true criterion of the attachment of friends; the most liberal professions of good will are very far from being the surest mark of it.

—Washington.

It is better to have loved and lost,
Than never to have loved at all.

—Tennyson.

The end is to have two made one
In will and affection.

—Ben Jonson.

Affection lights a brighter flame,
Than ever blazed by art.

—Cooper.

Love is an affection of union whereby we desire to enjoy perpetual union with the thing loved.

—Luther.

Talk not of wasted affection! Affection never was wasted.
If it enrich not the heart of another, its waters returning
Back to their springs like the rain, shall fill them full of refreshing;
That which the fountain sends forth returns again to the fountain.

—Longfellow.

Let me forever gaze
And bless the newborn glories that adorn thee;
From every blush that kindles in thy cheeks,
Ten thousand little loves and graces spring
To revel in the roses.

—Rowe.

Hearts may be attracted by assumed qualities, but the affections are only to be fixed by those that are real.

—De May.

She was my friend—I had but her—No more,
No other upon earth—and as for heaven,
I am as they that seek a sign, to whom
No sign is given, My mother! Oh my mother!

—Taylor.

Pure and true affection well I know,
Leaves in the heart no room for selfishness.

—Southey.

Our sweetest experiences of affection are meant to be suggestions of that realm which is the home of the heart.

—Beecher.

What greater thing is there for two human souls than to feel that they are joined for life, to strengthen each other in all labor, to rest on each other in all sorrow, to minister to each other in all pain, to be one with each other in silent, unspeakable memories of the moment of the last parting.

—George Eliot.

Such is the power of love, sweet passion,
That it all sordid baseness doth expel,

And the refined soul doth newly fashion,
Unto a fairer form.
—Spenser.

I am aweary, waiting here
For one who tarries long from me.
O! art thou far, or art thou near?
And must I still be sad for thee?
Or wilt thou straightway come to me?
Love, answer, I am near to thee,
I come to thee.
—Wilcox.

How do I love thee? Let me count the ways:
I love thee to the depth and breadth and height
My soul can reach when feeling out of sight
For the ends of Being and ideal Grace;
I love thee to the level of each day's
Most quiet need, by sun and candlelight;
I love thee freely as men strive for right;
I love thee purely as they turn from praise;
I love thee with the passion put to use
In my old griefs, and with my childhood's faith;
I love thee with a love I seemed to lose
With my lost saints,—I love thee with the breath,
Smiles, tears, of all my life!—and, if God choose,
—I shall but love thee better after death.
—Mrs. Browning.

BEAUTY

Beautiful eyes are those that show
Beautiful thoughts that burn below;
Beautiful lips are those whose words
Leap from the heart like songs of birds;
Beautiful hands are those that do
Work that is earnest, brave, and true,
Moment by moment, the whole day through.
—Anonymous.

The beauty of the round, green world is not
Of the world's essence; far within the sky
The tints which make this bubble bright are wrought;
The bubble bursts, the light can never die.
—Lucy Larcom.

The best part of beauty is that which a picture cannot express.
—Bacon.

After all, the most natural beauty in the world is honesty and moral truth. For all beauty is truth. True features make the beauty of a face; and true proportions the beauty of architecture; as true measures that of harmony and music.
—Shaftesbury.

Beauty enchants and grace captivates for a season, but a well informed mind and a cultured heart will make a home beautiful when the bloom of beauty has faded and gone.
—T. W. Hanford.

The whole world, without art and dress,
Would be but one great wilderness,
And mankind but a savage herd,
For all that nature has conferred:
This does but roughen and design,
Leaves art to polish and refine.
—Butler.

A thing of beauty is a joy forever;
Its loveliness increases; it will never
Pass into nothingness; but still will keep
A bower quiet for us, and a sleep
Full of sweet dreams, and health, and quiet breathing.
—Keats.

Beauty, like ice, our footing does betray;
Who can tread sure on the smooth slippery way?
Pleased with the passage, we glide swiftly on,
And see the dangers which we can not shun.
—Dryden.

I am so much of a utilitarian that I prefer the useful to the useless.
—Sir W. Hamilton.

'Tis distance lends enchantment to the view,
And robes the mountain in its azure hue.
—Campbell.

The sky,
Never before so beautiful, sank down
Into my heart, and held me like a dream.
—Wordsworth.

But, as there are two kinds of beauty, in the one of which is loveliness, in the other dignity; we ought to regard loveliness as the quality of woman, dignity that of man. Therefore, let every ornament unworthy of a man be removed from his person, and let him guard against any similar defect in his gestures and movements.
—Cicero.

The beautiful is nothing else than the visible form of the good.
—Plato.

Beauty is God's handwriting, a wayside sacrament.
—Anonymous.

Make each day useful and cheerful, and prove that you know the worth of time by employing it well. Then youth will be happy, old age without regret, and life a beautiful success.
—Louise M. Alcott.

Remember, if thou marry for beauty, thou bindest thyself all thy life for that which perchance will neither last nor please thee one year; and when thou hast it, it will be to thee of no price at all.
—Raleigh.

Beauty has little to do with engaging the love of woman. The air, manner, tone, the conversation, the something that interests, the something to be proud of,—these are the attributes of the man made to be loved.
—Bulwer.

The highest culture is to speak no ill;
The best reformer is the man whose eyes
Are quick to see all beauty and all worth,
And by his own discreet, well-ordered life,
He best reproves the erring.
—Ella Wheeler Wilcox.

The beauty of the face is a frail possession, a short-lived flower, only attached to the mere epidermis; but that of the mind is innate and unchangeable. I have, therefore, been long seeking a way to give you that kind of beauty which years cannot destroy, to inoculate your mind with the love of learning, and to insinuate into you a desire for knowledge.

—Molière.

A beautiful thought is a line written by angel hands upon the page of the soul, and left to bear witness of seraphic presence; no face is homely that reflects a beautiful soul.

—Alice A. Crawford.

CHARACTER

We sow a thought and reap an act; we sow an act and reap a habit; we sow a habit and reap a character; we sow a character and reap destiny.

—Thackeray.

The use of character is to be a shield against calumny.

—Burke.

You cannot dream yourself into a character; you must hammer and forge yourself one.

—Froude.

He that respects himself is safe from others;
He wears a coat that none can pierce.

—Longfellow.

Better to have the poet's heart than brain,
—Feeling than song; but better far than both,
To be a song, a music of God's making.

—MacDonald.

A character is like a kite. It will never soar unless held by a string of good judgment, and balanced by common sense.

—Anonymous.

There are certain events in the life of every man which fashion and stamp his character; they may seem small and unimportant in themselves, but they are great and important to each of us; they mark that slight bend where two lines which had been running parallel begin to diverge, never to meet again. We halt for a moment; we look about and wonder, and then choose our further way in life.

—Max-Müller.

Reputation is what men and women think of us; character is what God and the angels know of us.

—Anonymous.

I count this thing to be grandly true,
That a noble deed is a step toward God,
Lifting the soul from the common sod,
To a purer air and a brighter view.

—Holland.

It is character that makes the man, and the character is always being shaped by the daily thoughts and actions. We are building day by day the character that will make or mar our happiness.

—Anonymous.

People seldom improve when they have no other model but themselves to copy after.

—Goldsmith.

The true test of civilization is not the census nor the size of cities and crops,—no, but the kind of man the country turns out.

—Emerson.

'Tis education forms the common mind;
Just as the twig is bent the tree's inclined.

—Pope.

I am a part of all that I have met.

—Tennyson.

Character, like porcelain ware, must be painted before it is glazed. There can be no change after it is burned in.

—Beecher.

"Honesty is the best policy," but he who acts on that principle is not an honest man.

—Whately.

There is nothing more to be esteemed than a manly character. I like a person who knows his own mind and sticks to it; who sees at once what is to be done in given circumstances and does it.

—Hazlitt.

A man's collective disposition constitutes his character.

—L. H. Atwater.

The qualities we possess never make us so ridiculous as those we pretend to have.

—Anonymous.

Character is the entity, the individuality of the person, shining from every window of the soul, either as a beam of purity, or as a clouded ray that betrays the impurity within. The contest between light and darkness, right and wrong, goes on; day by day, hour by hour, moment by moment, our characters are being formed, and this is the all-important question which comes to us in accents ever growing fainter as we journey from the cradle to the grave, "Shall those characters be good or bad?"

—W. J. Bryan.

COUNTRY

The strength of a nation does not lie in forts, nor in navies, nor yet in great standing armies, but in happy and contented citizens, who are ever ready to protect for themselves and to preserve for posterity the blessings which they enjoy. It is for us of this generation to so perform the duties of citizenship that a "government of the people, by the people and for the people shall not perish from the earth."

—W. J. Bryan.

What is so much beloved by the people as liberty, which you see not only to be greedily sought after by men, but also by beasts, and to be preferred to all things?

—Cicero.

Better to dwell in freedom's hall,
With a cold, damp floor and mouldering wall,
Than bow the head and bend the knee
In the proudest palace of slavery.

—Moore.

Liberty is the right to do what the laws allow, and if a citizen could do what they forbid, it would be no longer liberty, because others would have the same powers.

—Montesquieu.

When Washington declined a military escort on the occasion of his inauguration (1789), he said, "I require no guard but the affections of the people."

—Edward Everett.

Under the guidance of God, Lincoln was, next to Washington, the greatest instrument for the preservation of the Union and the integrity of the country; and this was brought about chiefly through his strict and faithful adherence to the constitution of his country.

—Peter Cooper.

Soldiers! from yonder pyramids forty centuries look down upon you.

—Napoleon.

O liberty! thou goddess heavenly bright,
Profuse of bliss, and pregnant with delight!
Eternal pleasures in thy presence reign,
And smiling plenty leads thy wanton train.

—Addison.

The anarchist is a criminal whose perverted instincts lead him to prefer confusion and chaos to the most beneficent form of social order. He is everywhere not merely the enemy of system and of progress, but the deadly foe of liberty. If ever anarchy is triumphant, its triumph will last for but one red moment, to be succeeded for ages by the gloomy night of despotism.

—Roosevelt.

There are times in the history of men and nations when they stand so near the veil that separates mortals from immortals, time from eternity, and men from their God, that they can almost hear the breathings, and feel the pulsations of the heart of the infinite.

—Garfield.

Flag of the free heart's hope and home!
By angel hands to valor given;
Thy stars have lit the welkin dome,
And all thy hues were born in heaven.
Forever float that standard sheet!
Where breathes the foe but falls before us,
With freedom's soil beneath our feet,
And freedom's banner floating o'er us!

—Joseph Rodman Drake.

Let me call your attention for a moment to the objects of government. Our government derives its powers from the consent of the governed. What kind of government will people consent to? Only that kind which protects all and knows no favoritism. The people desire a government in which all citizens stand upon the same plane without regard to wealth or position in society. A government which guarantees equal rights to all and confers special privileges upon none is the government which appeals to the affections of the common people.

—W. J. Bryan.

Peace hath her victories
No less renowned than war.

—Milton.

Some through ambition, or through thirst of gold,
Have slain their brothers, and their country sold.

—Dryden.

Beneath the rule of men entirely great,
The pen is mightier than the sword.

—Bulwer.

Next in importance to freedom and justice is popular education, without which neither justice nor freedom can be permanently maintained.

—Garfield.

Against the flying ball no valor avails; the soldier is dead before he sees the means of his destruction. If Adam had seen in a vision the horrible instruments his children were to invent, he would have died of grief.

—Luther.

Success in war, like charity in religion, covers a multitude of sins.

—Napier.

The people are seldom wrong in their opinions; in their sentiments they are never mistaken.

—Junius.

"Make way for liberty!" he cried—
Made way for liberty, and died!

—Montgomery.

CULTURE

A beautiful behavior is better than a beautiful form. It gives a higher pleasure than statues or pictures; it is the finest of fine arts.

—Emerson.

Many would come to wisdom if they did not think themselves already there.

—Bacon.

Knowledge may give weight, but accomplishments give luster, and many more people see than weigh.

—Chesterfield.

We must take care of the beautiful, for the useful can take care of itself.

—Goethe.

Do all you can to keep alive, and in full flame, that divine spark within you which we call conscience.

—Franklin.

We cannot all be masters, nor all masters cannot be truly followed.

—Shakespeare.

All the beautiful sentiments in the world weigh less than a single lovely action.

—Lowell.

A sick man that gets talking about himself, a woman that gets talking about her baby, and an author that begins reading out of his own book never know when to stop.

—Holmes.

It is as easy to draw back a stone thrown with force from the hand as to recall a word once spoken.

—Alexander.

Music is the art of the prophet, the only art that can calm the agitations of the soul; it is one of the most magnificent and delightful presents that God has given us.

—Luther.

Heroism is simple, and yet is rare,
Every one who does the best he can is a hero.
—Josh Billings.

Worth makes the man, and want of it the fellow,
The rest is all but leather and prunello.
—Pope.

He that complies against his will
Is of the same opinion still.
—Samuel Butler.

Who does the best his circumstance allows,
Does well, acts nobly; angels could do no more.
—Young.

Full many a gem of purest ray serene
The dark, unfathomed caves of ocean bear;
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.
—Thomas Gray.

Reading maketh a full man; conference, a ready man; and writing, an exact man. Histories make men wise; poets, witty; the mathematics, subtle; natural philosophy, deep; morals, grave; and logic and rhetoric, able to contend.

—Bacon.

The sublime and the ridiculous are so nearly related that it is difficult to classify them separately. One step above the sublime makes the ridiculous, and one step above the ridiculous makes the sublime again.

—Thomas Paine.

Genius is a simple thing of itself, however much of a marvel it may be to other men.

—Lowell.

I charge thee, fling away ambition;
By that sin fell the angels.
—Shakespeare.

In the end thought rules the world. There are times when impulses and passions are more powerful, but they soon expend themselves, while the mind, acting constantly, is ever ready to drive them back and to work when their energies are exhausted.

—McCosh.

DEATH

And the stately ships move on
To their haven under the hill;
But O, for the touch of a vanished hand,
And the sound of a voice that is still.
—Tennyson.

Backward, flow backward, O tide of the years!
I am so weary of toil and of tears,
Toil without recompense,—tears all in vain,—
Take them, and give me my childhood again.
—Elizabeth A. Allen.

Can storied urn or animated bust,
Back to its mansion call the fleeting breath?
Can honor's voice provoke the silent dust,
Or flattery soothe the dull, cold ear of death?
—Thomas Gray.

How wonderful is Death!
Death and his brother Sleep.
—Shelley.

Ships that pass in the night, and speak to each other in passing,
Only a signal shown and a distant voice in the darkness;
So on the Ocean of Life we pass and speak one to another,
Only a look and a voice, and then darkness again and silence.
—Longfellow.

One sweetly solemn thought
Comes to me o'er and o'er,—
I am nearer home to-day
Than I ever have been before.
Nearer my Father's house,
Where the many mansions be;
Near the great white throne;
Nearer the crystal sea.
—Phoebe Cary.

O the present is too sweet
To go on forever thus!
Round the corner of the street
Who can say what waits for us?—
Meeting—greeting, night and day,
Faring each the self-same way—
Still somewhere the path must end,—
Reach your hand to me, my friend!
—James Whitcomb Riley.

There is no death—the thing that we call death
Is but another, sadder name for life,
Which is itself an insufficient name,
Faint recognition of that unknown life—
That Power whose shadow is the universe.
—R. H. Stoddard.

There is a Reaper, whose name is Death,
And, with his sickle keen,
He reaps the bearded grain at a breath,
And the flowers that grow between.
—Longfellow.

Soldier, rest, thy warfare's o'er,
Sleep the sleep that knows no breaking,
Dream of battle fields no more,
Morn of toil, nor night of waking.
—Scott.

'Tis the wink of an eye, 'tis the draft of a breath,
From the blossom of health to the paleness of death,
From the gilded saloon to the bier and the shroud,—
Oh! why should the spirit of mortal be proud?
—William Knox.

Death is ever, in my opinion, bitter and premature to those who are engaged on some immortal work. For those who live from day to day immersed in pleasure, finish with each day the whole purpose of existence; while those who look forward to prosperity, and endeavor by their exertions to hand down their name to future generations, to such death is always premature, as it ever carries them off from the midst of some unfinished design.

—Plinius Major.

Death rides on every passing breeze,
He lurks in every flower.
—Heber.

What is certain in death is somewhat softened by what is uncertain; it is an indefiniteness in the time, which holds a certain relation to the infinite, and what is called eternity.

—La Bruyère.

I fled and cried out, Death!
Hell trembled at the hideous name, and sighed
From all her caves, and back resounded, Death!

—Milton.

Slowly and sadly we laid him down,
From the field of his fame fresh and gory;
We carved not a line, we raised not a stone—
But we left him alone in his glory!

—Wolfe.

Leaves have their time to fall,
And flowers to wither in the north wind's breath,
And stars to set—but all,
Thou hast all seasons for thine own, oh Death!

We know when moons shall wane,
When summer birds from far shall cross the sea,
When autumn's hue shall tinge the golden grain—
But who shall teach us when to look for thee?

—F. Hemans.

True, all we know must die,
Though none can tell the exact appointed hour;
Nor should it cost the virtuous heart a sigh,
Whether death doth crush the oak, or nip the opening flower.

Unstained by any crime,
Which to maturer years might owe their birth,
In summer's earliest bloom, or morning's prime,
How blessed are they who quit this checkered scene of earth!

—Mrs. Cornwall B. Wilson.

All voices teach
That death is but the mystic door,
Wherethro' glows life forever more,
We long to reach.

—S. B. Sumner.

Death is the chilliness that precedes the dawn;
We shudder for a moment, then awake
In the broad sunshine of the other life.

—Longfellow.

DYING WORDS

It is well.

—Washington.

Be serious.

—Grotius.

Is this fidelity?

—Nero.

Now it is come.

—John Knox.

Head of the army.

—Napoleon.

It is the last of earth.

—J. Q. Adams.

Let the light enter.

—Goethe.

Independence forever.

—Adams.

Don't give up the ship.

—Lawrence.

Into Thy hands, O Lord.

—Tasso.

God preserve the emperor.

—Haydn.

The artery ceases to beat.

—Haller.

God's will, not our will, be done.

—McKinley.

What! Is there no bribing death?

—Cardinal Beaufort.

A dying man can do nothing easy.

—Franklin.

I feel as if I were to be myself again.

—Scott.

I loved my God, my father, and liberty.

—Mme. de Staël.

Let me die to the sound of delicious music.

—Mirabeau.

I resign my soul to God, and my daughter to my country.

—Thomas Jefferson.

Well, Nora, I guess I'm going; we have made a brave fight.

—John A. Johnson.

You spoke of a refreshment, my Emilie; take my last notes, sit down to my piano here, sing them with the hymn of your sainted mother. Let me hear once more those notes which have so long been my solacement and delight.

—Mozart.

EDUCATION

Those who think must govern those who toil.

—Goldsmith.

Education is the cheap defense of nations.

—Burke.

Our greatest glory consists not in never falling, but in rising every time we fall.

—Goldsmith.

If a man empties his purse into his head, no man can take it away from him. An investment in knowledge always pays the best interest.

—Franklin.

Excellence in any department can be obtained only by the labor of a lifetime. It is not purchased at a lesser price.

—Johnson.

This above all—to thine own self be true,
And it must follow as the night the day,
Thou canst not then be false to any man.

—Shakespeare.

He that is not open to conviction is not qualified for discussion.

—Whately.

Build thee more stately mansions, O, my soul,
As the swift seasons roll!
Leave thy low-vaulted past!
Let each new temple, nobler than the last,
Shut thee from Heaven with a dome more vast,
Till thou at length art free,
Leaving thine outgrown shell by life's unresting sea.

—Holmes.

Every person has two educations—one which he receives from others, and one, more important, which he gives himself.

—Gibbon.

Education is a better safeguard of liberty than a standing army. If we retrench the wages of the schoolmaster, we must raise those of the recruiting sergeant.

—Everett.

Jails and prisons are the complement of schools; so many less as you have of the latter, so many more you must have of the former.

—Mann.

The kindergarten system of education starts with the idea that in the schoolroom there is nothing so valuable as the child himself. The child is more than all the books—than all the furniture. The child is the product of God, and there can be nothing better.

—J. B. Bittinger.

Be fit for more than you are now doing.

—Garfield.

Knowledge will ever govern ignorance, and a people who mean to be their own governors must arm themselves with the power which knowledge gives.

—Madison.

O, far glimmering worlds and wings,
Mystic smiles and beckonings,
Lead us, through the shadowy isles,
Out into the afterwhiles.

—Riley.

Happy is the man that findeth wisdom and the man that getteth understanding. For the merchandise of it is better than the merchandise of silver, and the gain thereof than fine gold.

She is more precious than rubies; and all the things thou canst desire are not to be compared unto her.

Length of days is in her right hand; and in her left hand riches and honor.

Her ways are ways of pleasantness and all her paths are peace.

—Bible.

I must be going down-hill when I find my works equal to my aspiration.

—Thorwaldsen.

We must sow the seed and tend the growth, if we would enjoy the flower.

—Emile Souvestré.

Education gives power; hence it is a blessing or a curse, according to how we use it.

—J. W. Westlake.

In the measure that thou seekest to know thy duty, shalt thou know what is in thee. But what is thy duty? The demand of the hour.

—Goethe.

Men are often like knives with many blades; they know how to open one, and only one; all the rest are buried in the handle, and they are no better than they would have been if they had been made with but one blade. Many men use but one or two faculties out of the score with which they are endowed. A man is educated who knows how to make a tool of every faculty—how to open it, how to keep it sharp, and how to apply it to all practical purposes.

—Beecher.

FRIENDSHIP

I would not enter on my list of friends,
(Though graced with polished manners and fine sense,
Yet wanting sensibility) the man
Who needlessly sets foot upon a worm.

—Cowper.

Let us, then, be what we are, and speak what we think, and in all things
Keep ourselves loyal to the truth and the sacred profession of friendship.

—Longfellow.

I count myself in nothing else so happy,
As in a soul remembering my good friends;
And, as my fortune ripens with mv love,
It shall be still thy true love's recompense.

—Shakespeare.

Associate yourself with men of good quality, if you esteem your own reputation; for it is better to be alone than in bad company.

—George Washington.

Oh, many a shaft at random sent
Finds mark the archer little meant,
And many a word at random spoken
May soothe or wound a heart that's broken.

—Scott.

True happiness
Consists not in the multitude of friends,
But in the worth and choice.

—Johnson.

What a great blessing is a friend, with a breast so trusty that thou mayest safely bury all thy secrets in it, whose conscience thou mayest fear less than thine own, who can relieve thy cares by his conversation, thy doubts by his counsels, thy sadness by his good humor, and whose very looks give comfort to thee!

—Seneca.

Rejoice, and men will seek you;
Grieve, and they turn and go;
They want full measure of all your pleasure,
But they do not need your woe.
Be glad, and your friends are many;
Be sad, and you lose them all,—
There are none to decline your nectar'd wine,
But alone you must drink life's gall.

—Ella Wheeler Wilcox.

A friendship that makes the least noise is very often the most useful; for which reason I should prefer a prudent friend to a zealous one.
—Addison.

Although a friend may remain faithful in misfortune, yet none but the very best and loftiest will remain faithful to us after our errors and our sins.
—F. W. Farrar.

I think the great strength of friendship consists more in liking the same things than in liking each other.
—Henry W. Shaw.

If you have a friend worth loving,
Love him. Yes, and let him know
That you love him ere life's evening
Tinge his brow with sunset glow;
Why should good words ne'er be said
Of a friend till he is dead?
—Anonymous.

Friendship throws a greater luster on prosperity, while it lightens adversity by sharing in its griefs and anxieties.
—Cicero.

For as yellow gold is tried by fire, so do moments of adversity prove the strength of friendship. While fortune is friendly and smiles with serene countenance, crowds surround the rich; but when heaven's thunder rolls, they vanish, nor has he one who knows him, though lately encircled by troops of boon companions.
—Ovidius.

To live in hearts we leave behind, is not to die.
—Campbell.

Should auld acquaintance be forgot,
And never brought to min'?
Should auld acquaintance be forgot,
And days o' auld lang syne?
—Burns.

All men have their frailties, and whoever looks for a friend without imperfections will never find what he seeks. We love ourselves notwithstanding our faults, and we ought to love our friends in like manner.
—Cyrus.

Oft in the stilly night,
Ere slumber's chain has bound me,
Fond memory brings the light
Of other days around me;
The smiles, the tears,
Of boyhood's years,
The words of love then spoken;
The eyes that shone,
Now dimmed and gone,
The cheerful hearts now broken.
—Moore.

The friends thou hast, and their adoption tried,
Grapple them to thy soul with hooks of steel.
—Shakespeare.

Who is thy friend? The best, the least regarded,
In faith unchanging, and in love unchanged
Through all the changeful years, though ill rewarded—
Give Him thy heart, so long and far estranged;
And from the broken reeds of earth ascend,
To seek in heaven thine everlasting Friend.
—Anonymous.

GENERAL

Shall I go on? or have I said enough?
—Milton.

The subjective conscience must not be put above the objective law.
—Bismarck.

Right action is better than knowledge; but in order to do what is right, we must know what is right.
—Charlemagne.

Friendship that flows from the heart cannot be frozen by adversity, as the water that flows from the spring does not congeal in winter.
—Cooper.

Elegance of language must give way before simplicity in preaching sound doctrine.
—Savonarola.

I believe that we cannot live better than in seeking to become better, nor more agreeably than having a clear conscience.
—Socrates.

Who has not experienced how, on nearer acquaintance, plainness becomes beautified, and beauty loses its charm, according to the quality of the heart and mind?
—Fredrika Bremer.

God made the country and man made the town,
What wonder, then, that health and virtue, gifts
That can alone make sweet the bitter draught
That life holds out to all, should most abound
And least be threaten'd in the fields and groves.
—Cowper.

Abou Ben Adhem (may his tribe increase!)
Awoke one night from a deep dream of peace,
And saw within the moonlight in his room,
Making it rich, and like a lily in bloom,
An angel writing in a book of gold;
Exceeding peace had made Ben Adhem bold,
And to the Presence in the room he said,
"What writest thou?" The vision raised its head,
And, with a look made of all sweet accord,
Answered, "The names of those who love the Lord."
"And is mine one?" said Abou. "Nay, not so,"
Replied the angel. Abou spoke more low,
But cheerily still, and said, "I pray thee, then,
Write me as one that loves his fellow-men."

The angel wrote, and vanished. The next night
It came again, with a great wakening light,
And showed the names whom love of God had blessed:
And lo! Ben Adhem's name led all the rest!
—Leigh Hunt.

GOD

The following was written by Gabriel Romanovitch Derzhavin (1743-1816), a Russian lyric poet and statesman. It has been translated into all the principal modern languages, and is considered the finest ode to the Deity in the world of literature.

O thou eternal One! whose presence bright
All space doth occupy, all motion guide;
Unchanged through time's all-devastating flight;
Thou only God! There is no God beside!
Being above all beings! Three-in-one!
Whom none can comprehend, and none explore;
Who fill'st existence with *Thyself* alone;
Embracing all—supporting—ruling o'er—
Being whom we call God—and know no more!
In its sublime research, philosophy
May measure out the ocean deep—may count
The sands or the sun's rays—but God! for Thee
There is no weight nor measure;—none can mount
Up to Thy mysteries. Reason's brightest spark,
Though kindled by Thy light, in vain would try
To trace Thy counsels, infinite and dark;
And thought is lost ere thought can soar so high—
E'en like past moments in eternity
Thou from primeval nothingness didst call,
First chaos, then existence;—Lord! on Thee
Eternity had its foundation;—all
Sprung forth from Thee;—of light, joy, harmony,
Sole origin;—all life, all beauty, Thine.
Thy word created all, and doth create;
Thy splendor fills all space with rays divine;
Thou art, and wert, and shalt be! Glorious,
Light-giving, life-sustaining Potentate!
Thy chains the unmeasured universe surround;
Upheld by Thee, by Thee inspired with breath!
Thou the beginning with the end hath bound,
And beautifully mingled life and death!
As sparks mount upward from the fiery blaze,
So suns are born, so worlds spring forth from Thee,
And as the spangles in the sunny rays
Shine around the silver snow, the pageantry
Of heaven's bright army glitters in Thy praise.
A million torches lighted by Thy hand
Wander unwearied through the blue abyss;
They own Thy power, accomplish Thy command,
All gay with life, all eloquent with bliss.
What shall we call them? Pyres of crystal light—
A glorious company of golden streams—
Lamps of celestial ether burning bright—
Suns lighting systems with their joyful beams?
But Thou to these art as noon to night.
Yes! as a drop of water in the sea,
All this magnificence in Thee is lost;—
What are ten thousand worlds compared to Thee?
And what am *I* then? Heaven's unnumbered host,
Though multiplied by myriads, and arrayed
In all the glory of sublimest thought,
Is but an atom in the balance weighed
Against Thy greatness,—is a cipher brought
Against infinity! What am *I* then? Naught!
Naught! But the effluence of Thy light divine,
Pervading worlds, hath reached my bosom too;
Yes, in my spirit doth Thy spirit shine,
As shines the sunbeam in a drop of dew.
Naught! but I live, and on hope's pinions fly
Eager toward Thy presence; for in Thee
I live, and breathe, and dwell; aspiring high
Even to the throne of Thy divinity.
I am, O God! and surely *Thou* must be!
Thou art! directing, guiding all, Thou art!
Direct my understanding then to Thee;
Control my spirit, guide my wandering heart;
Though but an atom midst immensity,
Still I am something, fashioned by Thy hand!
I hold a middle rank, 'twixt heaven and earth,
On the last verge of mortal being stand,
Close to the realm where angels have their birth,
Just on the boundaries of the spirit land!
The chain of being is complete in me;
In me is matter's last gradation lost,
And the next step is spirit—Deity!
I can command the lightning and am dust!
A monarch, and a slave; a worm, a god!
Whence came I here, and how? so marvelously
Constructed and conceived? Unknown! this clod
Lives surely through some higher energy;
For from itself alone it could not be!
Creator, yes! Thy wisdom and Thy word
Created *me!* Thou source of life and good!
Thou spirit of my spirit, and my Lord!
Thy light, Thy love, in the bright plenitude,
Filled me with an immortal soul, to spring
Over the abyss of death, and bade it wear
The garments of eternal day, and wing
Its heavenly flight beyond the little sphere,
Even to its source—to Thee—its author there.
Oh thoughts ineffable! Oh visions blest!
Though worthless our conception all of Thee,
Yet shall Thy shadowed image fill our breast,
And waft its homage to Thy Deity.
God! thus alone my lonely thoughts can soar;
Thus seek Thy presence—Being wise and good,
Midst Thy vast works admire, obey, adore;
And, when the tongue is eloquent no more,
The soul shall speak in tears of gratitude.

LIFE

We live in deeds, not years; in thoughts, not breaths;
In feeling, not in figures on a dial;
We should count time by heart throbs. He most lives
Who thinks most, feels the noblest, acts the best.
—Bailey.

Life is real, life is earnest,
And the grave is not its goal.
"Dust thou art, to dust returnest"
Was not spoken of the soul.
—Longfellow.

The noblest of life depends on its consistency, clearness of purpose, quiet, ceaseless energy.

—Ruskin.

You better live your best and act your best and think your best to-day; for to-day is the sure preparation for to-morrow and all the other to-morrows that follow.

—Harriet Martineau.

Life is a narrow vale, between the cold and barren peaks of two eternities; we strive in vain to look beyond the heights, we cry aloud, but the only answer is our wailing cry; from the voiceless lips of the unreplying dead there comes no word, but in the dark hour of death, hope sees a star, and listening, love can hear the rustle of a wing.

—Robert G. Ingersoll.

Life is a leaf of paper white
Whereon each one of us may write
His word or two, and then comes night;
Greatly begin! Though thou hast time
But for a line, be that sublime!
Not failure, but low aim, is crime.

—Lowell.

In all the affairs of human life, social as well as political, I have remarked that courtesies of a small and trivial character are the ones which strike deepest to the grateful and appreciating heart.

—Henry Clay.

Life is joy, and love is power,
  Death all fetters doth unbind;
Strength and wisdom only flower
  When we toil for all our kind.

—Lowell.

One life; a little gem of time between two eternities; no second chance to us for evermore.

—Thomas Carlyle.

When all the fiercer passions cease,
  The glory and disgrace of youth,
When the deluded soul in peace
  Can listen to the voice of truth;
When we are taught in whom to trust,
  And how to spare, to spend, to give,
Our prudence kind, our pity just,
  'Tis then we rightly learn to live.

—George Crabbe.

Plunge boldly into the thick of life! Each lives it, not to many is it known; and seize it where you will, it is interesting.

—Goethe.

Reflect that life, like ev'ry other blessing,
Derives its value from its use alone.

—Samuel Johnson.

Life, like the waters of the seas, freshens only when it ascends toward heaven.

—Richter.

Hope springs eternal in the human breast;
Man never is, but always to be blest.
The soul, uneasy and confined from home,
Rests and expatiates in a life to come.

—Pope.

To know
That which before us lies in daily life,
Is the prime wisdom.

—Milton.

The truest end of life is to know the life that never ends.

—William Penn.

So live that, when thy summons comes to join
The innumerable caravan, which moves
To that mysterious realm where each shall take
His chamber in the silent halls of death,
Thou go not, like the quarry-slave at night,
Scourged to his dungeon; but, sustained and soothed
By an unfaltering trust, approach thy grave
Like one who wraps the drapery of his couch
About him, and lies down to pleasant dreams.

—William Cullen Bryant.

We shape, ourselves, the joy or fear
  of which the coming life is made,
And fill our future atmosphere
  With sunshine or with shade.

—Whittier.

There is no death! the stars go down,
  To rise upon some fairer shore;
And bright in heaven's jewelled crown
  They shine forever more.
There is no death! an angel form
  Walks o'er the earth with silent tread;
He bears our best loved things away
  And then we call them "dead."

—Anonymous.

Life! I know not what thou art,
But know that thou and I must part;
And when, or how, or where we met,
I own to me's a secret yet,
But this I know; when thou art fled,
Where'er they lay these limbs, this head,
No clod so valueless shall be
As all that then remains of me.
O, whither, whither dost thou fly?
  Where bend unseen thy trackless course?
  And, in this strange divorce,
Ah, tell where I must seek this compound, I?

To the vast ocean of empyreal flame,
From whence thy essence came,
Dost thou thy flight pursue, when freed
From matter's base, encumbering weed?
Or dost thou, hid from sight,
Wait, like some spellbound knight,
Through blank, oblivious years the appointed hour
To break thy trance and reassume thy power?
Yet canst thou, without thought or feeling be?
O, say, what art thou, when no more thou'rt thee?

Life! we've been long together
Through pleasant and through cloudy weather;
'Tis hard to part when friends are dear—
Perhaps 'twill cost a sigh, a tear;
Then steal away, give little warning,
  Choose thine own time;
  Say not Good Night,—but in some brighter clime,
    Good Morning.

—Anna L. Barbauld.

LOVE

Love reckons hours for months, and days for years;
And every little absence is an age.

—Dryden.

Love has power to give in a moment what toil can scarcely give in an age.

—Goethe.

He prayeth well, who loveth well
Both man and bird and beast;
He prayeth best, who loveth best

All things, both great and small;
For the dear Lord who loveth us,
He made and loveth all.
—Coleridge.

Have Love! Not alone love for one;
But man as man thy brother call;
And scatter, like the circling sun,
Thy charities on all.
—Schiller.

Only add
Deeds to thy knowledge answerable; add faith,
Add virtue, patience, temperance; add love,
By name to some called charity,—the soul
Of all the rest.
—Milton.

Give me but
Something whereunto I may bind my heart—
Something to love, to rest upon, to clasp
Affection's tendrils round.
—Mrs. Hemans.

The heart, like a tendril accustomed to cling,
Let it grow where it will, cannot flourish alone,
But will lean to the nearest and loveliest thing
It can twine to itself, and make closely its own.
—Moore.

Something the heart must cherish,
Must love and joy and sorrow learn;
Something in passion clasp or perish,
And in itself to ashes burn.
—Longfellow.

Next to love, sympathy is the divinest passion of the human heart.
—Burke.

In peace, love tunes the shepherd's reed;
In war he mounts the warrior's steed;
In halls in gay attire is seen,
In hamlets, dances on the green;
Love rules the court, the camp, the grove,
And men below, and gods above;
For love is heaven, and heaven is love
—Scott.

Conquer hate
With love; and let light cares of life go by
Careless, because it is a show, which cheats:
And earthly treasures fade; and he is rich
Who lays up riches in the realm beyond,
Of deeds done well, and of each service wrought,
And days without injuriousness.
—Matthew Arnold.

There is nothing half so sweet in life
As love's young dream.
—Moore.

The same love that tempts us into sin,
If it be true love, works out its redemption.
—Lytton.

If our love were but more simple
We should take God at his word,
Then our lives would be all sunshine.
In the sweetness of our Lord;
For the love of God is broader
Than the measure of man's mind,
And the heart of the Eternal
Is most wonderfully kind.
—F. W. Faber

Oh, ever thus from childhood's hour,
I've seen my fondest hopes decay;
I never loved a tree or flower,
But 'twas the first to fade away.
—Thomas Moore.

When the heart is pure, it cannot help loving, because it has found the source of love, which is God!
—Jean B. Vianney.

Kind hearts are the gardens,
Kind thoughts are the roots,
Kind words are the blossoms,
Kind deeds are the fruits;
Love is the sweet sunshine
That warms into life,
For only in darkness
Grow hatred and strife.
—Anonymous.

Love is indestructible;
Its holy flame forever burneth,—
From heaven it came, to heaven returneth.
—Southey.

The rose is fairest when 'tis budding new,
And hope is brightest when it dawns from fears.
The rose is sweetest washed with morning dew,
And love is loveliest when embalmed in tears.
—Scott.

All heaven regards the pure soul with eyes of love. When one has preserved his innocence, he feels himself borne aloft by love, even as a bird is borne upward by its wings.
—Jean B. Vianney.

MAN

Men are but children of a larger growth; our appetites are apt to change as theirs, and full as craving too, and full as vain.
—Dryden.

Know then thyself, presume not God to scan;
The proper study of mankind is man.
—Pope.

No man gets on so well in this world as he whose daily walk and conversation are clean and consistent, whose heart is pure and whose life is honorable.
—Wm. McKinley.

Man that is born of a woman
Is of few days and full of trouble.
He cometh forth like a flower, and is cut down;
He fleeth also as a shadow, and continueth not.
—Job xiv, 1-2.

Man—living, feeling man—is the easy sport of the overmastering present.
—Schiller.

Many men do not allow their principles to take root, but pull them up every now and then, as children do flowers they have planted, to see if they are growing.
—Longfellow.

Man is the metre of all things, the hand is the instrument of instruments, and the mind is the form of forms.
—Aristotle.

Every man must think after his own fashion; for on his own path he finds a truth, or a kind of truth, which helps him through life. But he must not give himself the rein; he must control himself; mere naked instinct does not become him. Unqualified activity, of whatever kind, leads at last to bankruptcy.

—Goethe.

What a piece of work is man! How noble in reason! How infinite in faculties! In form and moving, how express and admirable! In action, how like an angel! In apprehension, how like a god.

—Shakespeare.

A wise man who does not assist with his counsels, a rich man with his charity, and a poor man with his labor, are perfect nuisances in a commonwealth.

—Dean Swift.

A man may twist as he pleases, and do what he pleases, but he inevitably comes back to the track to which nature has destined him.

—Goethe.

His life was gentle; and the elements
So mix'd in him, that nature might stand up
And say to all the world, "This was a man!"

—Shakespeare.

What a chimera is man! What a singular phenomenon! what a chaos! what a scene of contrariety! A judge of all things, yet a feeble worm; the shrine of truth, yet a mass of doubt and uncertainty; at once the glory and the scorn of the universe. If he boasts, I lower him; if he lowers himself, I raise him; either way I contradict him, till he learns that he is a monstrous, incomprehensible mystery.

—Pascal.

Men of character are the conscience of the society to which they belong.

—Emerson

Man lives apart but not alone;
He walks amid his peers unread;
The best of thoughts that he has known,
For lack of list'ners are never said.

—Jean Ingelow.

I venerate the man whose heart is warm,
Whose hands are pure, whose doctrine and whose life,
Coincident, exhibit lucid proof
That he is honest in the sacred cause.

—Cowper.

Some men are born great, some achieve greatness, and some have greatness thrust upon them.

—Shakespeare.

Every man, however good he may be, has a yet better man dwelling within him, which is properly himself, but to whom, nevertheless, he is often unfaithful. It is to the interior and less mutable being that we should attract ourselves, not to the changeable every-day man.

—Von Humboldt.

Man loves knowledge, and the beams of truth
More welcome touch his understanding's eye
Than all the blandishments of sound his ear,
Than all of taste his tongue.

—Akenside.

He is a man who knows how to die for his God and his country; his heart, his lips, his arms, are faithful unto death.

—Ernst M. Arndt.

MAXIMS

Acts indicate the intention.

The greater contains the less.

Usage is the best interpreter of things.

An agreement without consideration is void.

No man should be condemned unheard.

He who derives the advantage ought to sustain the burden.

That which was originally void does not by lapse of time become valid.

That to which a person assents is not esteemed in law an injury.

He has the better title who was first in point of time.

Reproach evil only in yourself, and then before committing it. Prevent rather than repent.

Reason is the soul of law, and when the reason of any particular law ceases, so does the law itself.

In law the immediate, not the remote, cause of any event is regarded.

It is a rule of law that a man shall not be twice vexed for one and the same thing.

The express mention of one thing implies the exclusion of another.

The law assists those who are vigilant, not those who sleep over their rights.

A written agreement proves itself, but an oral agreement must be proved by evidence.

Consider little whether the gain be for yourself or the whole. We should learn to enjoy and suffer for the community of good.

Enjoying good in another increases our own. By learning to enjoy what is common we increase our happiness beyond our means.

Credence should be given to one skilled in a particular trade or profession.

Love for many does not diminish love for one, but it multiplies instead of divides among its subjects. The light of the sun is increased by shining on a multitude of stars.

MISCELLANEOUS

Order is heaven's first law; and this confessed,
Some are, and must be, greater than the rest.

—Pope.

Soft is the music that would charm forever;
The flower of sweetest scent is shy and lowly.

—Wordsworth.

Man's inhumanity to man
Makes countless thousands mourn.
—Burns.

We were the first that ever burst
Into that silent sea.
—Coleridge.

When two men quarrel, who owns the coolest head
Is most to blame.
—Goethe.

I will show myself highly fed and lowly taught.
—Shakespeare.

As the purse is emptied, the heart is filled.
—Victor Hugo.

Let another man praise thee, and not thine own mouth.
—Solomon.

Pleasures are like poppies spread,
You seize the flower, the bloom is shed,
Or like the snowflake in the river,
A moment white, then lost forever.
—Robert Burns.

Reflect that life, like every other blessing,
Derives its value from its use alone.
—Johnson.

Who shall decide when doctors disagree,
And soundest casuists doubt, like you and me?
—Pope.

Use well the moment; what the hour
Brings for thy use is in thy power,
And what thou best canst understand,
Is just the thing lies nearest to thy hand.
—Goethe.

Like our shadows,
Our wishes lengthen as our sun declines.
—Young.

He who would free from malice pass his days,
Must live obscure, and never merit praise.
—Gay.

The good are better made by ill,
As odors crushed are sweeter still.
—Rogers.

In the lexicon of youth, which Fate reserves
For a bright manhood, there's no such word as fail.
—Bulwer.

And if I should live to be
The last leaf upon the tree,
In the Spring;
Let them smile as I do now
At the old forsaken bough
Where I cling.
—Holmes.

The heights of great men reached and kept
Were not attained by sudden flight;
But they, while their companions slept,
Were toiling upward in the night.
Standing on what too long we bore
With shoulders bent and downcast eyes,
We may discern—unseen before—
A path to higher destinies.
—Longfellow.

The best laid schemes o' mice and men
Gang aft a-gley;
And leave us naught but grief and pain
For promised joy.
—Burns.

Thinking leads men to knowledge. He may see and hear, and read and learn, as much as he please; he will never know any of it, except that which he has thought over, that which by thinking he has made the property of his mind. Is it then saying too much if I say, that man by thinking only becomes truly man? Take away thought from man's life, and what remains?
—Pestalozzi.

MOTTOES

In all labor there is profit.

It is easy to begin a task well.

They laugh best who laugh last.

A wise son maketh a glad father.

A soft answer turneth away wrath.

True worth is in being not seeming.

Order and method make all things easy.

Necessity is the mother of invention.

Time and tide wait for no man.

Continuity is the father of success.

Education begins a gentleman, conversation completes him.

He who walks with the wise shall be wise.

As a man thinketh in his heart so is he.

Time is a necessary element in education.

The mind of man is the noblest work of the Creator; to train it is a lofty calling.
—Anonymous.

Where ignorance is bliss,
'Tis folly to be wise.
—Gray.

Honor and shame from no condition rise;
Act well your part, there all the honor lies.
—Pope.

Civility costs nothing but buys every thing.

Variety is the spice of life,
That gives it all its flavor.
—Cowper.

Absence of occupation is not rest,
A mind quite vacant is a mind distressed.
—Cowper.

MUSIC

Music hath charms to soothe a savage breast,
To soften rocks or bend a knotted oak.
I've read that things inanimate have moved,
And, as if living souls, have been informed,
By magic numbers and persuasive sound.
—Congreve.

Music is the inarticulate speech of the heart, which cannot be compressed into words, because it is infinite.

—Wagner.

Sweetest melodies are those that are by distance made more sweet.

—Wordsworth.

Music is a discipline, and a mistress of order and good manners; she makes the people milder and gentler, more moral and more reasonable.

—Luther.

There's music in the sighing of a reed;
There's music in the gushing of a rill;
There's music in all things, if men had ears.

—Byron.

Music should strike fire from the heart of man, and bring tears from the eyes of woman.

—Beethoven.

We look before and after and sigh for what is not;
Our sincerest laughter with some pain is fraught;
Our sweetest songs are those that tell of saddest thought.

—Shelley.

The man that hath no music in himself,
Nor is not moved with concord of sweet sounds,
Is fit for treasons, stratagems, and spoils.

—Shakespeare.

Music cleanses the understanding, inspires it, and lifts it into a realm which it would not reach if it were left to itself.

—Beecher.

In the germ, when the first trace of life begins to stir, music is the nurse of the soul; it murmurs in the ear, and the child sleeps; the tones are companions of his dreams,—they are the world in which he lives.

—Bettina.

Sing, Christmas bells!
Say to the earth, this is the morn
Whereon our Savior-King is born;
Sing to all men, the bond, the free,
The rich, the poor, the high, the low,
The little child that sports in glee,
The aged folks that tottering go —
Proclaim the morn
That Christ is born,
That saveth them, that saveth me.

—Eugene Field.

Music washes away from the soul the dust of every-day life.

—Auerbach.

The buds may blow and the fruit may grow,
And the autumn leaves drop crisp and sere;
But whether the sun or the rain or the snow,
There is ever a song somewhere, my dear.

—James Whitcomb Riley.

God sent his singers upon earth
With songs of gladness and of mirth,
That they might touch the hearts of men,
And bring them back to Heaven again.

—Longfellow.

Music, once admitted to the soul, becomes a sort of spirit, and never dies. It wanders perturbedly through the halls and galleries of the memory, and is often heard again, distinct and living as when it first displaced the wavelets of the air.

—Bulwer-Lytton.

Music revives the recollections it would appease.

—Mme. de Staël.

Is there a heart that music cannot melt?
Alas! how is that rugged heart forlorn!
Is there, who ne'er those mystic transports felt
Of solitude and melancholy born?

—Beattie.

The consciousness of duty performed gives us music at midnight.

—George Herbert.

Tones are the cadences which emotion gives to thought.

—Herbert Spencer.

I hold, in truth, with him who sings
To one clear harp in divers tones,
That men may rise on stepping-stones
Of their dead selves to higher things.

—Tennyson.

O, pleasant is the welcome kiss
When day's dull round is o'er;
And sweet the music of the step
That meets us at the door.

—J. R. Drake.

NATURE

There is a pleasure in the pathless woods,
There is a rapture on the lonely shore;
There is society where none intrudes,
By the deep sea, and music in its roar.

—Byron.

Smiles are the flowers of God's goodness.

—Wilberforce.

The very flowers that bend and meet,
In sweetening others, grow more sweet.

—Holmes.

All of nature's works are a part of the perfection of a plan. She makes no mistakes, creates no vacancy, and guesses at nothing.

—Josh Billings.

SPRING:

I come, I come! ye have called me long;
I come o'er the mountain with light and song!
Ye may trace my step o'er the wakening earth,
By the winds which tell of the violet's birth,
By the primrose stars in the shadowy grass,
By the green leaves, opening as I pass.

—Felicia Hemans.

Nature is but a name for an effect, whose cause is God.

—Cowper.

Those grim-robed senators of mighty woods,
Tall oaks, branch-charmed by the earnest stars,
Dream, and so dream all night without a stir.

—Keats.

Nature has bestowed on man alone an erect stature and raised his thoughts to the contemplation of heaven, as if it were connected with him by relationship and his ancient home.
—Cicero.

There are as many pleasant things,
As many pleasant tones,
For those who dwell by cottage hearths
As those who sit on thrones.
—Phoebe Cary.

To him who in the love of nature holds
Communion with her visible forms, she speaks
A various language; for his gayer hours
She has a voice of gladness, and a smile
And eloquence of beauty, and she glides
Into his darker musings, with a mild
And healing sympathy, that steals away
Their sharpness, ere he is aware.
—Bryant.

God of the world! the hour must come,
And nature's self to dust return;
Her crumbling altars must decay;
Her incense-fires shall cease to burn;
But still her grand and lovely scenes
Have made man's warmest praises flow;
For hearts grow holier as they trace
The beauty of the world below.
—William B. O. Peabody.

O nature, how is every charm supreme!
Whose votaries feast on raptures ever new!
O for the voice and fire of seraphim,
To sing thy glories with devotion due.
—Beattie.

The stars shall fade away; the sun himself
Grow dim with age, and nature sink in years,
But thou shalt flourish in immortal youth,
Unhurt amid the war of elements,
The wreck of matter and the crash of worlds.
—Pollock.

Not in the clamor of the crowded streets,
Not in the shouts and plaudits of the throng,
But in ourselves, are triumph and defeat.
—Longfellow.

In men whom men pronounce as ill,
I find so much of goodness still;
In men whom men pronounce divine,
I find so much of sin and blot;
I hesitate to draw the line
Between the two, when God has not.
—Joaquin Miller.

The sweetest bird builds near the ground,
The loveliest flowers spring low,
And we must stoop for happiness
If we its worth would know.
—Swain.

Art may err, but nature cannot miss.
—Dryden.

Though a sense of grief
Comes with the falling leaf,
And memory makes the summer doubly pleasant,
In all my autumn dreams,
A future summer gleams,
Passing the fairest glories of the present.
—George Arnold.

Nature has copies which art cannot imitate.
—Macaulay.

Roll on, thou deep and dark blue ocean—roll!
Ten thousand fleets sweep over thee in vain;
Man marks the earth with ruin,—his control
Stops with the shore;—upon the watery plain
The wrecks are all thy deed, nor doth remain
A shadow of man's ravage, save his own,
When for a moment, like a drop of rain,
He sinks into thy depths with bubbling groan,
Without a grave, unknelled, uncoffined, and unknown.
—Byron.

PATRIOTISM

Remember! that we are one country now. Dismiss from your minds all sectional feeling, and bring up your children to be, above all, Americans.
—Robert E. Lee.

Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay;
Princes and lords may flourish, or may fade;
A breath can make them, as a breath has made;
But a bold peasantry, their country's pride,
When once destroyed can never be supplied.
—Goldsmith.

The people never give up their liberties but under some illusion.
—Burke.

Is life so dear, or peace so sweet, as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take; as for me, give me liberty, or give me death!
—Patrick Henry.

Political convulsions, like geological upheavals, usher in new epochs of the world's progress.
—Garfield.

What we mean by liberty is not release from law, but a state of security and sheltered equity under it.
—Horace Bushnell.

Every man among us is more fit to meet the duties and responsibilities of citizenship because of the perils over which, in the past, the nation has triumphed; because of the blood and sweat and tears, the labor and the anguish, through which, in the days that have gone, our forefathers moved on to triumph.
—Theodore Roosevelt.

Ideas are the great warriors of the world, and a war that has no ideas behind it is simply brutality.
—Garfield.

Our watchword is victory or death; we will enjoy our liberty or perish in the last ditch.
—Andrew Jackson.

In the long vista of the years to roll,
Let me not see my country's honor fade;
O! let me see our land retain its soul,
Her pride, her freedom, and not freedom's shade.
—Keats.

Breathes there a man, with soul so dead,
Who never to himself hath said,
  This is my own, my native land?
Whose heart hath ne'er within him burned,
As home his footsteps he hath turned
  From wandering on a foreign strand!
If such there breathe, go, mark him well:
For him no minstrel raptures swell;
High though his title, proud his name,
Boundless his wealth as wish can claim;
Despite those titles, power and pelf,
The wretch, concentred all in self,
Living shall forfeit fair renown,
And, doubly dying, shall go down
To the vile dust from whence he sprung,
Unwept, unhonored and unsung.
—Scott.

Whoever could make two ears of corn or two blades of grass to grow upon a spot of ground where but one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.
—Swift.

It is better for a city to be governed by a good man than by good laws.
—Aristotle.

Whosoever is afraid of submitting any question, civil or religious, to the test of free discussion, is more in love with his own opinion than with truth.
—Watson.

Let me have men around me that are fat,
Sleek-headed men and such as sleep o' nights.
Yon Cassius has a lean and hungry look;
He thinks too much; such men are dangerous.
—Shakespeare.

The public school is the nursery of patriotism. Its best fruits are true Americans, and its crowning glory the making of loyal and intelligent citizens.
—A. N. Whitmarsh.

My eyes have grown dim in the service of my country, but I never doubted her justice.
—George Washington.

Let our object be our country, our whole country, and nothing but our country; and may this country, by the blessing of God, become a vast and splendid monument, not of oppression and terror, but of wisdom, of peace, and of liberty, upon which the world shall gaze with admiration forever.
—Daniel Webster.

PERSEVERANCE

Heaven is not gained in a single bound;
  But we build the ladder by which we rise
  From the lowly earth to the vaulted skies,
And we mount to its summit round by round.
—Holland.

The real difference between men is energy. A strong will, a settled purpose, an invincible determination, can accomplish almost anything; and in this lies the distinction between great men and little men.
—Fuller.

Honor and shame from no condition rise;
Act well your part, there all the honor lies.
—Pope.

All true work is sacred; in all true work, were it but true hand-labor, there is something of divineness. Labor, wide as the earth, has its summit in heaven.
—Thomas Carlyle.

Buy what thou hast no need of, and ere long thou shalt sell thy necessaries.
—Franklin.

The talent of success is nothing more than doing what you can do well, and doing well whatever you do without a thought of fame. If it comes at all it will come because it is deserved not because it is sought after.
—Longfellow.

No worthy enterprise can be done by us without continued plodding and wearisomeness to our faint and sensitive abilities.
—Milton.

There is a tide in the affairs of men,
Which taken at the flood leads on to fortune;
Omitted, all the voyage of their life
Is bound in shallows, and in miseries,
And we must take the current when it serves
Or lose our ventures.
—Shakespeare.

In the world there are only two ways of raising one's self, either by one's own industry or by the weakness of others.
—La Bruyère.

If you wish success in life, make perseverance your bosom friend, experience your wise counsellor, caution your elder brother, and hope your guardian genius.
—Addison.

I am climbing a difficult road, but the glory that attends success gives me strength for the labor.
—Propertius.

One of the illusions is, that the present hour is not the critical, decisive hour. Write it on your heart that every day is the best day in the year.
—Emerson.

Opportunity has hair in front; behind she is bald. If you seize her by the forelock, you may hold her; but if suffered to escape, not Jupiter himself can catch her again.
—Boker.

Our doubts are traitors,
And make us lose the good we oft might win
By fearing to attempt.
—Shakespeare.

The race of life has become intense; the runners are treading upon each other's heels. Woe be to him who stops to tie his shoestrings!
—Carlyle.

Do something worth living for, worth dying for; do something to show that you have a mind, and a heart, and a soul within you.
—Dean Stanley.

The miser:
He sat among his bags, and with a look
Which hell might be ashamed of, drove the poor
Away unalmsed; and 'midst abundance died—
Sorest of evils—died of utter want.
—Pollock.

All are architects of fate
Working in these halls of time;
Some with massive deeds and great,
Some with ornaments of rhyme.
—Longfellow.

In order to succeed as an orator, the novice should be thoroughly penetrated with the dignity of his calling. A buffoon or a merry-andrew is one thing, an orator is another. The one amuses, the other instructs, elevates mankind, and improves the public taste.

—Webster.

Property is the product of labor. It must be hewed out of the forest, plowed out of the field, blasted out of the mine, pounded out of the anvil, wrought out in the factory and furnace. Labor is at the bottom of it all; and the nation in which labor is the best cherished and cared for, must be the richest and most prosperous. Capital and labor are mutual allies.

—Roscoe Conkling.

POETICAL

O wad some pow'r the giftie gie us
To see oursels as others see us!
It wad frae monie a blunder free us
An' foolish notion;
What airs in dress an' gait wad lea'e us,
And e'en devotion.
—Burns.

A little said and truly said
Can deeper joy impart
Than hosts of words that reach the head
But never reach the heart.
—Goldsmith.

You may break, you may shatter the vase, if you will,
But the scent of the roses will hang round it still.
—Moore.

A little bit of
Patience—Often makes the sunshine come.
Love—Makes a happy home.
Hope—Makes a rainy day look gay.
Charity—Makes glad a weary way.
—Anonymous.

"Thy will be done."
Renew my will from day to day;
Blend it with Thine, and take away
All that now makes it hard to say
"Thy will be done."
—Charlotte Elliot.

Would I might utter all my heart can feel;
But there are thoughts weak words will not reveal!
The rarest fruitage is the last to fall;
The strongest language hath no words at all.
—Will Carleton.

Can wealth give happiness? look round and see
What gay distress! what splendid misery!
Whatever Fortune lavishly can pour,
The mind annihilates and calls for more.
—Young.

There is nothing so kingly as kindness,
And nothing so royal as truth.
—Alice Cary.

Thou hast wounded the spirit that loved thee,
And cherished thine image for years,
Thou hast taught me at last to forget thee,
In secret, in silence and tears.
—Mrs. David Porter.

I care not what sharp thorns grow thick below
And wound my hands and scar my anxious feet:
I only care to know God's roses grow,
And I may somewhere find their odor sweet.
—Gunsaulus.

(Thus), conscience does make cowards of us all;
And thus the native hue of resolution
Is sicklied o'er with the pale cast of thought;
And enterprises of great pith and moment,
With this regard, their currents turn awry,
And lose the name of action.
—Shakespeare.

No stream from its source
Flows seaward, how lonely soever its course,
But what some land is gladdened.
No star ever rose
And set without influence somewhere.
No life can be pure in its purpose and strong in its strife,
And all life not be purer and stronger thereby.
—Owen Meredith.

How shall I a habit break?
As you did that habit make.
As you gathered, you must lose;
As you yielded, now refuse.
Thread by thread the strands we twist
Till they bind us neck and wrist.
Thread by thread the patient hand
Must untwine ere free we stand.
—O'Reilly.

If you're told to do a thing,
And mean to do it, really,
Never let it be by halves;
Do it fully, freely!
Do not make a poor excuse,
Waiting, weak, unsteady;
All obedience worth the name
Must be prompt and ready.
—Alice Cary.

Plant blessings, and blessings will bloom;
Plant hate and hate will grow;
You can sow today—to-morrow will bring
The blossom that proves what sort of thing
Is the seed—the seed that you sow.
—Anonymous.

There are bridges to cross and the way is long,
But a purpose in life will make you strong;
Keep e'er on your lips a cheerful song;
Look up, my boy, look up!
—Sarah K. Bolton.

Our birth is but a sleep and a forgetting:
The soul that rises with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar:
Not in entire forgetfulness,
And not in utter nakedness,
But trailing clouds of glory do we come.
—Wordsworth.

It is easy enough to be pleasant
When life flows by like a song.
But the woman worth while is the woman who'll smile
When everything goes dead wrong.
For the test of the heart is trouble,
And it always comes with years,
And the smile that is worth the praise of earth
Is the smile that shines through tears.
—Ella Wheeler Wilcox.

All that glisters is not gold—
Often have you heard that told:
Many a man his life hath sold,
But my outside to behold.
Gilded tombs do worms infold;
Had you been as wise as bold,
Young in limbs, in judgment old,
Your answer had not been inscroll'd:
Fare you well; your suit is cold.
—Shakespeare.

The quality of mercy is not strained;
It droppeth as the gentle rain from heaven
Upon the place beneath: it is twice blessed;
It blesseth him that gives, and him that takes:
'Tis mightiest in the mightiest: it becomes
The throned monarch better than his crown;
His sceptre shows the force of temporal power,
The attribute to law and majesty,
Wherein doth sit the dread and fear of kings;
But mercy is above this sceptred sway;
It is enthroned in the hearts of kings;
It is an attribute to God himself;
And earthly power doth then show likest God's
When mercy seasons justice.
—Shakespeare.

PROSAIC

The will of man is by reason swayed.
—Shakespeare.

To be as good as our fathers we must be better.

—Wendell Phillips.

We put too much faith in systems, and too little in men.

—Disraeli.

Never leave that till to-morrow which you can do to-day.

—Franklin.

The life given us by nature is short; but the memory of a well spent life is eternal.
—Cicero.

A man should be careful never to tell tales of himself to his own disadvantage; people may be amused and laugh at the time, but they will be remembered and brought up against him on some subsequent occasion.

—Johnson.

Deeds, not intuitions; facts, not feelings; a steadfast will, not acts of volition; a life, not the aspirations of moments or hours; a striving forward, not looking back.
—Baron Bunsen.

Associate with men of good judgment, for judgment is found in conversation, and we make another man's judgment ours by frequenting his company.

—Fuller.

It is not what we read, but what we remember, that makes us learned. It is not what we intend, but what we do, that makes us useful. It is not a few faint wishes, but a lifelong struggle, that makes us valiant.
—Beecher.

God never places us in any position in which we cannot grow. We may fancy that He does; we may fear we are so impeded by fretting petty cares that we are gaining nothing; but when we are not sending any branches upward we may be sending roots downward. Perhaps in the time of our humiliation, when everything seems a failure, we are making the best kind of progress.
—Elizabeth Prentiss.

We hold these truths self-evident: that all men are created equal; that they are endowed by their Creator with certain inalienable rights; that among these are life, liberty and the pursuit of happiness.

—Thomas Jefferson.

Justice commands us to have mercy on all men, to consult for the interest of mankind, to give every one his due, not to commit sacrilege, and not to covet the goods of others.
—Cicero.

When a child can be brought to tears, not from fear of punishment, but from repentance for his offence, he needs no chastisement. When the tears begin to flow from grief at one's own conduct, be sure there is an angel nestling in the bosom.

—Horace Mann.

Wisdom is the only thing which can relieve us from the sway of the passions and the fear of danger, and which can teach us to bear the injuries of fortune itself with moderation, and which shows us all the ways which lead to tranquillity and peace.

—Cicero.

They shall hunger no more, neither thirst any more; for the Lamb, which is in the midst of the throne, shall feed them, and shall lead them unto living fountains of waters: and God shall wipe away all tears from their eyes.
—Revelation vii, 16-17.

The eye speaks with an eloquence and truthfulness surpassing speech. It is the window out of which the winged thoughts often fly unwittingly. It is the tiny magic mirror on whose crystal surface the moods of feeling fitfully play, like the sunlight and shadow on a still stream.
—Tuckerman.

Hell is paved with good intentions.
—Johnson.

It is said that gardeners, sometimes, when they would bring a rose to richer flowering, deprive it, for a season, of light and moisture. Silent and dark it stands, dropping one fading leaf after another, and seeming to go down patiently to *death.* But when every leaf is dropped, and the plant stands stripped to the uttermost, a new life is even then working in the buds, from which shall spring a tender foliage and a brighter wealth of flowers. So, often in celestial gardening, every leaf of earthly joy must drop, before a new and divine bloom visits the soul.

—Harriet Beecher Stowe.

Every effort we make for the happiness of others lifts us above ourselves.

—Lydia Maria Child.

In following the history of mankind we observe that in proportion as nations cultivate their moral and intellectual powers, atrocious actions diminish in numbers, and manners and pleasures become more refined, the legislation milder, the religion purified from superstition, and the arts address themselves to the finer emotions of the mind.

—Spurzheim.

RELIGION

Mythology is religion growing wild.

—Schelling.

Without the Way, there is no going;
Without the Truth, there is no knowing;
Without the Life, there is no living.

—Thomas à Kempis.

To be furious in religion is to be irreligiously religious.

—William Penn.

God must have loved the plain people; He made so many of them.

—Lincoln.

Truth is everlasting, but our ideas of truth are not. Theology is but our present ideas of truth classified and arranged.

—Beecher.

I would rather dwell in the dim of superstition than in air rarified to nothing by the air-pump of unbelief.

—Richter.

The Bible is not such a book as man would have made, if he could; nor could have made, if he would. —Henry Rogers.

Christ remains the highest model of religion within the reach of our thoughts.

—Strauss.

In the intuitions of consciousness we gaze upon the very face of God.

—Joseph Cook.

A beautiful church is a sermon in stone, and its spire a finger pointing to heaven.

—Schaff.

God sleeps in the mineral, dreams in the animal, and awakens into consciousness in man.

—Spinoza.

Without the Bible man would be in the midst of a sandy desert, surrounded on all sides by a dark and impenetrable horizon.

—Daniel Webster.

The best will is our Father's will,
And we may rest there calm and still;
Oh! make it hour by hour thine own,
And wish for naught but that alone
Which pleaseth God.

—Gerhardt.

To will evils is to do them.

—Swedenborg.

By night an atheist half believes a God.

—Young.

Duty and to-day are ours; results and futurity belong to God.

—Horace Greeley.

Jesus Christ is the condescension of divinity, and the exaltation of humanity.

—Phillips Brooks.

They serve God well
Who serve his creatures.

—Mrs. Norton.

There's a wideness in God's mercy
Like the wideness of the sea;
There's a kindness in His justice
Which is more than liberty.
For the love of God is broader
Than the measure of man's mind;
And the heart of the Eternal
Is most wonderfully kind.

—F. W. Faber.

The Lord is my shepherd; I shall not want.
He maketh me to lie down in green pastures: he leadeth me beside the still waters.
He restoreth my soul: he leadeth me in the paths of righteousness for his name's sake.
Yea, though I walk through the valley of the shadow of death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort me.
Thou preparest a table before me in the presence of mine enemies: thou anointest my head with oil; my cup runneth over.
Surely goodness and mercy shall follow me all the days of my life: and I will dwell in the house of the Lord forever.

—Psalm xxiii.

SELECTIONS

YOUNG.—Why all this toil for triumph of an hour?
JOHNSON.—Life's a short summer, man a flower.

POPE.—By turns we catch the vital breath and die—
PRIOR.—The cradle and the tomb, alas! so nigh.

SEWELL.—To be is better than not to be,
SPENSER.—Though all man's life may seem a tragedy.

DANIEL.—But light cares speak when mighty griefs are dumb,
RALEIGH.—The bottom is but shallow whence they come.

Longfellow.—Your fate is but the common fate of all;
Southwell.—Unmingled joys here to no man befall.

Congreve.—Nature to each allots his proper sphere;
Churchill.—Fortune makes folly her peculiar care.

Rochester.—Custom does often reason overrule,
Armstrong.—And throws a cruel sunshine on a fool.

Trench.—Sin may be clasped so close we cannot see its face,
Somerville.—Vile intercourse where virtue has no place.

Thomson.—Then keep each passion down, however dear,
Byron.—Thou pendulum betwixt a smile and tear.

Smollett.—Her sensual snare let faithless pleasure lay,
Crabbe.—With craft and skill to ruin and betray.

Massinger.—Soar not too high to fall, but stoop to rise;
Cowley.—We masters grow of all that we despise.

Beattie.—Then I renounce that impious self-esteem;
Cowper.—Riches have wings, and grandeur is a dream.

Milton.—Live well; how long or short permit to heaven;
Bailey.—They who forgive most shall be most forgiven.

Dana.—The trust that's given, guard, and to yourself be just,
Shakespeare.—For, live we how we can, yet die we must.

Davenant.—Think not ambition wise because 'tis brave;
Gray.—The path of glory leads but to the grave.

Willis.—What is ambition? 'Tis a glorious cheat!
Addison.—Only destructive to the brave and great.

Dryden.—What's all the gaudy glitter of a crown?
Quarles.—The way to bliss lies not on beds of down.

Watkins.—How long we live, not years but actions tell;
Herrick.—That man lives twice who lives the first life well.

—Compiled by Mrs. H A. Deming.

SUCCESS

In battle or business, whatever the game—
In law or in love, it is ever the same;
In the struggle for power, or scramble for pelf,
Let this be your motto, "Rely on yourself."
For whether the prize be a ribbon or stone,
The victor is he who can go it alone.

—Saxe.

Adversity is the diamond dust heaven polishes its jewels with.

—Leighton.

Gold is tried in the fire and acceptable men in the furnace of adversity.

—Sirach.

Beware of little extravagances; a small leak will sink a big ship.

—Franklin.

If you want knowledge you must toil for it; if food, you must toil for it; and if pleasure, you must toil for it; toil is the law.

—Ruskin.

Fame is a vapor, popularity an accident, riches take wings; those who cheer to-day will curse to-morrow; only one thing endures—character!

—Horace Greeley.

The waste of life is greater than its accumulations.

—Mark Hopkins.

Many men owe the grandeur of their lives to their tremenduous difficulties.

—Spurgeon.

There is no road to success but through a clear, strong purpose. A purpose underlies character, culture, position, attainment of whatever sort.

—T. T. Munger.

The best education in the world is that got by struggling to obtain a living.

—Wendell Phillips.

Save money—
Not for to hide it in a hedge,
Nor for a train attendant,
But for the glorious privilege
Of being independent.

—Burns.

Believe me when I tell you that thrift of time will repay you in after life with a usury of profit beyond your most sanguine dreams, and that the waste of it will make you dwindle, alike in intellectual and moral stature, beyond your darkest reckonings.

—W. E. Gladstone.

Luck is ever waiting for something to turn up; labor, with keen eyes and strong will, will turn up something. Luck lies in bed and wishes the postman would bring him the news of a legacy; labor turns out at six o'clock, and with busy pen or ringing hammer, lays the foundation of a competence. Luck whines; labor whistles. Luck relies on chance; labor on character.

—Cobden.

There is but one straight road to success, and that is merit. The man who is successful is the man who is useful. Capacity never lacks opportunity. It cannot remain undiscovered, because it is sought by too many anxious to utilize it. A capable man on earth is more valuable than any precious deposit under the earth, and the object of a much more vigilant search.

—W. Bourke Cochran.

A man should be so trained in his youth that his body is the ready servant of the will, and does with equal ease and pleasure all the work, that, as a mechanism, it is capable of.

—Huxley.

The nerve that never relaxes, the eye that never blenches, the thought that never wanders—these are the masters of victory.

—Burke.

The important thing in life is to have a great aim, and to possess the aptitude and perseverance to attain it.

—Goethe.

No! failure's a part of the infinite plan;
Who finds that he can't, must give way to who can;
And as one and another drop out of the race,
Each stumbles at last to his suitable place.

—Crangles.

It is success that colors all interest;
Success makes fools admired, makes villains honest;
All the proud virtue of this vaunting world
Fawns on success and power, however acquired.

—Thomson.

The more complete and extensive a man's education, the more able is he to accomplish whatever he undertakes. Each part and power of man is educable. The educated hand is strong, steady, active, graceful and sensitive. The educated eye is alert, telescopic, microscopic, discriminating, capable of many tasks, accomplished in many arts. The educated memory is comprehensive, unconfused, accurate, retentive, quick. The educated reason is ready, logical, tranquil, profound, masterly. The educated affections are tender, constant, vigilant to seek and do their office, beautiful, robust. The educated will is decisive, prompt, unwavering—immovable in its rest, irresistible in its Godlike motion. An educated man is a grand congeries of organs and forces, material and spiritual, working together in health and harmony, mutually dependent, mutually helpful—many in one—subordinate only to Him who is supreme. To educate a man is to give his hand, brain and heart their maximum life, power and facility. "Know thyself" is the theoretical end of education; use thyself is the practical end. The Orient said know and be, the Occident says know, be, and do.

—W. H. Venable.

TENNYSON

Below is a list of beautiful thoughts taken from the writings of Tennyson. Students of literature will find it helpful to prepare similar lists from other writers.

Men may rise on stepping-stones
Of their dead selves to higher things.

So make thy manhood mightier day by day.

Better not be at all
Than not be noble.

He that wrongs his friend
Wrongs himself more.

A man may fail in duty twice,
And the third time may prosper.

And then, as now, the day prepared
The daily burden for the back.

Kind hearts are more than coronets,
And simple faith than Norman blood.

There lives more faith in honest doubt,
Believe me, than in half the creeds.

Self-reverence, self-knowledge, self-control,
These three alone lead life to sovereign power.

Our little systems have their day;
They have their day and cease to be.

Great deeds cannot die;
They with the sun and moon renew their light
Forever, blessing those that look on them.

O well for him whose will is strong!
He suffers, but he will not suffer long;
He suffers, but he cannot suffer wrong.

Have I not found a happy earth?
I least should breathe a thought of pain;
Would God renew me from my birth,
I'd almost live my life again.

Since we deserved the name of friends,
And thine effect so lives in me,
A part of mine may live in thee
And move thee on to noble ends.

Ring in the valiant man and free,
The larger heart, the kindlier hand;
Ring out the darkness of the land,
Ring in the Christ that is to be.

Rise, happy morn, rise, holy morn,
Draw forth the cheerful day from night:
O Father, touch the east, and light
The light that shone when hope was born.

Knowledge is now no more a fountain sealed:
Drink deep, until the habits of the slave,
The sin of emptiness, gossip and spite,
And slander, die.

Man for the field and woman for the hearth:
Man for the sword and for the needle she:
Man with the head and woman with the heart:
Man to command and woman to obey:
All else confusion.

Forward, the Light Brigade!
Was there a man dismayed?
Not tho' the soldier knew
Some one had blundered:
Theirs not to make reply,
Theirs not to reason why,
Theirs but to do and die.

Ring out, wild bells, to the wild sky,
The flying cloud, the frosty light:
The year is dying in the night;
Ring out, wild bells, and let him die
Ring out the old, ring in the new,
Ring, happy bells, across the snow:
The year is going; let him go;
Ring out the false, ring in the true.

TRUTH

He is the freeman whom the truth makes free,
And all are slaves besides.
—Cowper.

Truth is easy, and the light shines clear in hearts kept open, honest, and sincere.
—Abraham Coles.

Every brave man is a man of his word; to such base vices he cannot stoop, and shuns more than death the shame of lying.
—Corneille.

Truth crushed to earth shall rise again;
The eternal years of God are hers;
But Error, wounded, writhes in pain,
And dies among his worshipers.
—Bryant.

Dare to do right, dare to be true!
Other men's failures can never save you;
Stand by your conscience, your honor, your faith,
Stand like a hero, and battle till death.
—Anonymous.

Oh! great is the power of truth, which is easily able to defend against the artful proceedings of men, their cunning and subtlety, not less than against their treachery.
—Cicero.

True worth is in being—not seeming;
In doing each day that goes by
Some little good—not in dreaming
Of great things to do by and by.
For whatever men say in blindness,
And spite of the fancies of youth,
There's nothing so kingly as kindness,
And nothing so royal as truth.
—Alice Cary.

Where truth and right are concerned, we must be firm as God.
—Guthrie.

May the realities of life dispel for you its illusions.
—Richter.

Man loves knowledge and the beams of truth
More welcome touch his understanding's eye
Than all the blandishments of sound his ear,
Than all of taste his tongue.
—Akenside.

Oh! speed the moment on
When wrong shall cease,—and liberty and love,
And truth, and right, throughout the earth be known
As in their home above.
—Whittier.

Truth comes home to the mind so naturally, that when we learn it for the first time, it seems as though we did no more than recall it to our memory.
—Fontenelle.

Man is a lover of Truth
And bound to follow, wherever she go,
Stark-naked, and up or down,
Thro' her high hill-passes of stainless snow,
Or the foulest sewer of the town.
—Tennyson.

Give me only your positive beliefs; of the problematical I have enough in myself already.
—Goethe.

'Tis strange, but true; for truth is always strange;
Stranger than fiction.
—Byron.

If you have truth to utter, speak, and leave
The rest to God.
—Acton Bell.

Truth is eclipsed often, and it sets for a night; but never is it turned aside from its eternal path.
—Ware.

The greatest friend of truth is time; her greatest enemy is prejudice; and her constant companion is humility.
—Colton.

Sow truth, if thou the true wouldst reap;
Who sow the false shall reap in vain;
Erect and sound thy conscience keep;
From hollow words and deeds refrain.
—H. Bonar.

Truth is the foundation of all knowledge and the cement of all societies.
—Dryden.

VIRTUE

Virtue consists in doing our duty in the several relations we sustain, in respect to ourselves, to our fellow-men, and to God, as known from reason, conscience, and revelation.
—Alexander.

Think truly, and thy thought shall the world's famine feed;
Speak truly, and thy word shall be a fruitful seed;
Live truly, and thy life shall be a great and noble creed.
—Emerson.

When our souls shall leave this dwelling, the glory of one fair and virtuous action is above all the scutcheons on our tomb, or silken banners over us.
—Shirley.

The paths of virtue, though seldom those of worldly greatness, are always those of pleasantness and peace.
—Scott.

'Tis not the fairest form that holds
The mildest, purest soul within;
'Tis not the richest plant that folds
The sweetest breath of fragrance in.
—Dawes.

The virtue of a man ought to be measured, not by his extraordinary exertions, but by his every-day conduct.
—Pascal.

When men grow virtuous in old age, they are merely making a sacrifice to God of the devil's leavings.
—Swift.

So long as you are innocent fear nothing.
—Longfellow.

I pray the prayer of Plato old,—
God make thee beautiful within,
And let thine eyes the good behold
In everything save sin.
—J. G. Whittier.

A man that hath no virtue in himself ever envieth virtue in others.
—Bacon.

Be good, my dear; let who will be clever;
Do noble things, not dream them all day long;
And so make life, death, and the vast forever
One grand, sweet song.
—Kingsley.

I make it a virtue to be contented with my middlingness; it is always pardonable, so that one does not ask others to take it for superiority.
—George Eliot.

Lead, kindly light, amid th' encircling gloom,
Lead thou me on!
The night is dark, and I am far from home:
Lead thou me on:
Keep thou my feet; I do not ask to see
The distant way: one step's enough for me.
—J. H. Newman.

Virtue is shut out from no one; she is open to all, accepts all, invites all, gentlemen, freedmen, slaves, kings, and exiles: she selects neither house nor fortune: she is satisfied with a human being without adjuncts.
—Seneca.

Happy were men, if they but understood,
There is no safety but in doing good.
—Fountaine.

The world is grown so bad,
That wrens may prey where eagles dare not perch:
Since every Jack became a gentleman,
There's many a gentle person made a Jack.
—Shakespeare.

Passions are likened best to floods and streams;
The shallow murmur, but the deep are dumb.
—Raleigh.

Do good and leave behind you a monument of virtue that the storm of time can never destroy. Write your name in kindness, love, and mercy, on the hearts of thousands you come in contact with year by year; you will never be forgotten. No; your name, your deeds will be as legible on the hearts you leave behind as the stars on the bow of the evening. Good deeds will shine as the stars of heaven.
—Chalmers.

So dear to heaven, is saintly chastity,
That when a soul is found sincerely so,
A thousand liveried angels lackey her,
Driving far off, each thing of sin and guilt.
—Milton.

Sweet source of virtue,
O sacred sorrow! he who knows not thee
Knows not the best emotions of the heart,—
Those tender tears that harmonize the soul,
The sigh that charms, the pang that gives delight.
—Thomson.

WIT

Wit is the salt of conversation, not the food.
—Dryden.

'Tis an old maxim in the schools,
That flattery's the food of fools;
Yet now and then you men of wit
Will condescend to take a bit.
—Swift.

That one may smile, and smile, and be a villain.
—Shakespeare.

Laugh not too much; the witty man laughs least:
For wit is news only to ignorance;
Less at thine own things laugh; lest in the jest
Thy person share, and the conceit advance.
—Herbert.

"The proper study of mankind is man."
The most perplexing one, no doubt, is woman.
—Saxe.

A little nonsense now and then
Is relished by the best of men.
—Anonymous.

The next best thing to being witty one's self, is to be able to quote another's wit.
—Bovee.

Laugh and be fat, sir.
—Ben Jonson.

The loud laugh that spoke the vacant mind.
—Goldsmith.

There cannot be a smile on the lips of the hopeless. The blow which crushes the life will shatter the smile.
—Holland.

Humor is wit, steeped in mannerism.
—Charles Lamb.

Since brevity is the soul of wit,
And tediousness the limbs—outward flourishes,
I will be brief.
—Shakespeare.

Men, dying, make their wills—but wives
Escape a work so sad:
Why should they make what all their lives
The gentle dames have had?
—Saxe.

Meanwhile the cats set up a squall,
And safe upon the garden wall
All night went cat-a-walling.
—Lowell.

Adam lay down and slept, and from his side
A woman in her magic beauty rose;
Dazzled and charmed, he called that woman bride,
And his first sleep became his last repose.
—Anonymous.

Some to conceit alone their taste confine,
And glittering thoughts struck out at ev'ry line;
Pleas'd with a work where nothing's just or fit;
One glaring chaos and wild heap of wit.
—Pope.

The impromptu reply is precisely the touchstone of the man of wit.
—Molière.

The best use of wit is to season conversation, to represent what is praiseworthy to the best advantage, and to expose the vices and follies of men.
—Tillotson.

Wit is a dangerous weapon, even to the possessor, if he knows not how to use it discreetly.
—Montaigne.

We may live without poetry, music, and art;
We may live without conscience, and live without heart;
We may live without friends; we may live without books;
But civilized man cannot live without cooks.
He may live without books—what is knowledge but grieving?
He may live without hope—what is hope but deceiving?
He may live without love—what is passion but pining?
But where is the man that can live without dining?
—Owen Meredith.

WOMAN

I love to look on woman when her eye
Beams with the radiant light of charity;
I love to look on woman when her face
Glows with religion's pure and perfect grace:
Oh then to her the loveliness is given
Which thrills the heart of man like dreams of heaven.
—Otis.

Not she with traitorous kiss her Savior stung,
Not she denied him with unholy tongue;
She, while apostles shrank, could dangers brave,
Last at the cross, and earliest at the grave.
—Eaton Stannard Barrett.

Youth fades; love droops; the leaves of friendship fall; a mother's secret hope outlives them all.
—Holmes.

Nature sent women into the world with this bridal dower of love, for this reason, that they might be, what their destination is, mothers, and love children, to whom sacrifices must ever be offered, and from whom none are to be obtained.
—Richter.

Man decides by reason; the judgment of woman her love is;
There where she does not love, woman already has judged.
—Schiller.

The happiest women, like the happiest nations, leave no history.
—George Eliot.

The elevation of humanity depends upon the elevation of woman, on the principle that a stream cannot rise higher than its source.
—Margaret Parker.

O woman! in our hours of ease,
Uncertain, coy, and hard to please,
And variable as the shade
By the light quivering aspen made;
When pain and anguish wring the brow,
A ministering angel thou!
—Sir Walter Scott.

I have often said it, nature meant to make woman as its masterpiece.
—Lessing.

Women who can reign in monarchies ought to vote in republics.
—G. F. Train.

Woman, contented in silent repose,
Enjoys, in its beauty, life's flower as it blows,
And waters and tends it with innocent heart;
Far richer than man with his treasures of art,
And wiser by far, in her circle confined,
Than he with his science and flights of the mind.
—Schiller.

A mother is a mother still,
The holiest thing alive.
—Coleridge.

The Woman's Christian Temperance Union is to-day the mightiest enginery of applied Christianity that the world ever saw; its motive power, woman's love to Christ, linked to undying mother-love aflame by the touch of the Holy Spirit.
—Mary J. Aldrich (Iowa).

Our lives are not laid out in vast, vague prairies, but in definite door-yards, within which we are to exercise and develop our faculties.
—Elizabeth Cleveland.

Learned women are ridiculed because they put to shame unlearned men.
—George Sand.

A woman's whole life is a history of the affections. The heart is her world; it is there her ambition strives for empire; it is there her avarice seeks for hidden treasures. She sends forth her sympathies on adventure, she embarks her whole soul in the traffic of affection; and, if shipwrecked, her case is hopeless, for it is a bankruptcy of the heart.
—Washington Irving.

Women do not often have it in their power to give like men, but they forgive like heaven.
Mme. Necker.

Contact with a high-minded woman is good for the life of any man.
—J. J Duryea.

Man's work must be one of thought, his work is intellectual; woman's work must be one of affection and sympathy, her work is the work of personal attachment.
—David Swing.

Her dignity consists in being unknown to the world; her glory is in the esteem of her husband; her pleasures in the happiness of her family.
—Rousseau.

Drawing

Art is the child of Nature; yes,
Her darling child, in whom we trace
The features of the mother's face,
Her aspect and her attitude.
—*Longfellow.*

THE object of drawing in schools is not to make artists, but to train the children to become art-loving. Through all of this work they should not only gain the power to create and appreciate the beautiful, but they should develop a greater power for enjoyment. Children have a clearer appreciation of the colorings in a picture after they have expressed their own ideas in regard to it. For this reason they should early learn that drawing is one form of self-expression.

Oftentimes a thought can be expressed by means of a drawing, or painting, that cannot be made plain by means of a word picture. A little poem by Frederick O. Sylvester, called *The Picture,* admirably expresses this thought:

"There's a pool in the ancient forest,"
The painter-poet said,
"That is violet-blue and emerald
From the face of the sky overhead."

So far in the ancient forest,
To the heart of the wood went I,
But found no pool of emerald,
No violet-blue for sky.

"There's a pool in the ancient forest,"
Said the painter-poet still,
"That is violet-blue and emerald,
Near the breast of a rose-green hill."

And the heart of the ancient forest
The painter-poet drew,
And painted a pool of emerald
That thrilled me through and through.

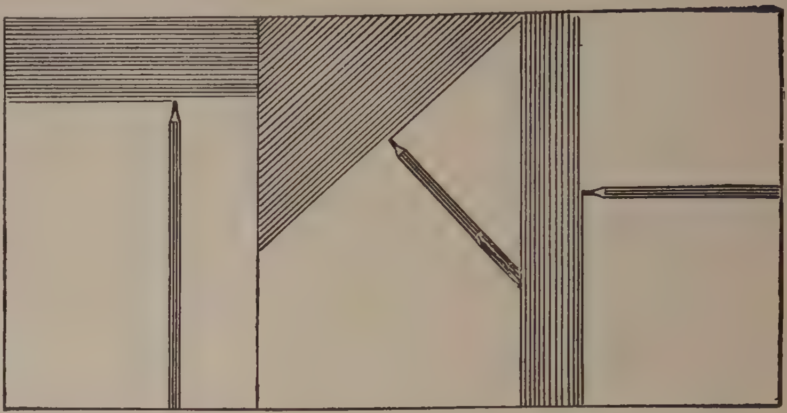
Then back to the ancient forest
I went with a strange, wild thrill,
And I found the pool of emerald
Near the breast of the rose-green hill.

The environments of the home and school are made better by a course in art study. In this way students become familiar with the harmony of color and design and early learn to apply it in decorative work.

The student learns truth through the art of drawing. He should aim to express the truth as he sees it. He gains power to draw only as he increases his power to see and to express correctly.

SUGGESTIONS. (a) Do not expect too much of little children. Lead them to express their own thoughts, not the teacher's thoughts. (b) Drawing should often be used in connection with the general work of the school. (c) As far as possible, the teacher should follow a definite outline on drawing. (d) The pencil should always be held at right angles to the line as it is drawn.

THE PLAN. A general plan of eight years' work in drawing, with suggestions and sample lessons, is given in this article, showing plainly how the instructor may plan her own work, and make use of the outlines as given.



This illustration is to show that the pencil should be at right angles to the line.

MATERIAL.

1. Manilla paper.
2. Size—6″ by 9″; 9″ by 12″; and 12″ by 18.″
3. Drawing and construction paper.
4. Mounting paper.
5. Gray and white drawing paper.
6. One-fourth inch squared paper.
7. Colored papers, crayons, and water colors (Three colors).
8. No. 7 brush, water pan, drawing pencils, scissors, and print and black glazed paper for cutting.
9. Engine colored papers, charcoal, and charcoal paper.

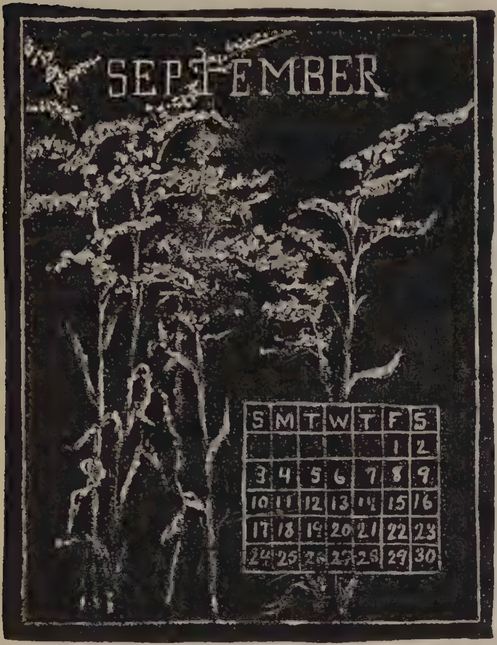
SUPPLIES. Supplies may be obtained from general school supply houses. It is well for the teacher to obtain catalogues and price lists from a number of houses. The names of several dealers are given below:

Garden City Educational Co., Wabash Ave., Chicago, Ill.
Prang Educational Co., Wabash Ave., Chicago, Ill.
Atkinson, Mentzer & Groves, 223 Washington St., Chicago, Ill.
Scott, Foresman & Co., Wabash Ave., Chicago, Ill.
D. C. Heath & Co., Wabash Ave., Chicago, Ill.
Milton Bradley & Co., Boston, Mass.
Devoe & Reynolds Co., 176 Randolph St., Chicago, Ill.
Thomas Charles & Co., 80 Wabash Ave., Chicago, Ill.
Joseph Dixon Crucible Co., 98 Jackson Boulevard, Chicago, Ill.

September Lessons.

The wind comes up across the hill, the wind goes laughing by:
The sweet September calls us before the flowers die.
It's time to take your baskets up and follow on with me,
Along the road and up the hill strange countries for to see.

—*Selected.*



SEPTEMBER.

Grade I.

Give lessons on the use and care of the paint box. The box should be placed in the upper right-hand corner of the desk and the paint pan at the left of the box. Pans and brushes should be cleaned at the close of every recitation. Name the colors as they are found in the spectrum: yellow, green, blue, violet, red, and orange. Give lessons in mixing colors. Yellow and blue make green; blue and red make orange. Teach the poem:

"Have you seen the sunshine fairies
Peeping out at you?
Red and orange, green and yellow,
Violet and blue?"

Paint a landscape involving a blue sky and green grass. Teach free-hand cuttings of September flowers. Paint flowers.

Grade II.

Teach lessons on the care of paints (See Grade I.). Review the mixing of colors. Take the children out of doors and teach the September poem. Paint a landscape involving blue sky, green grass, and distant trees. Repeat this part of the landscape work until the pupils can work quickly and well. Teach the names of trees and paint them. Teach the following poem:

"Do you know the trees by name
When you see them growing?
In the field or in the woods,
They are well worth knowing."

Illustrate:

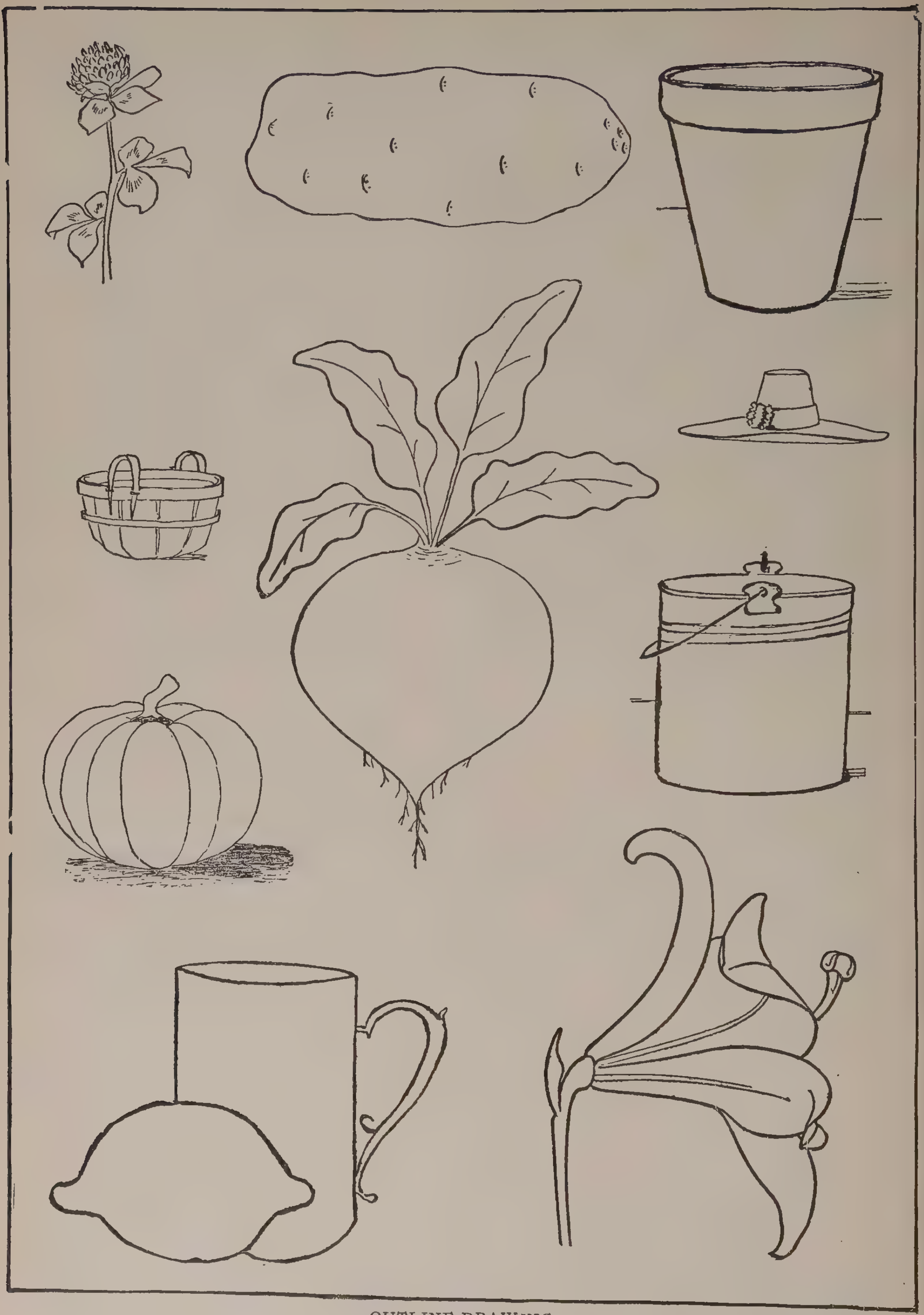
"Who has seen the wind?
Neither you nor I.
But, when the trees hang fluttering,
The wind is passing by."

Teach free-hand cutting of September flowers. Illustrate the cuttings. Paint the flowers.

Grade III

Teach this poem:

"We're three little colors,
We come hand in hand;
The three little workers
To brighten the land.
We come in the Autumn
To make the world fair.
Just look all about you,
We shine everywhere.
Three bright little sisters—
Our names you can call—
Red, Yellow, and Orange
Are the colors of fall."



OUTLINE DRAWING.

Teach colors and their complements: Yellow is the complement of violet; violet is the complement of yellow; blue is the complement of orange; orange is the complement of blue; red is the complement of green; green is the complement of red. Call attention to a September landscape, involving blue sky, green grass, distant trees, and trees in the foreground. Illustrate the following poem and use water colors as a medium:

"Little seed babies
In cribs of brown,
We found in a lane
Just outside of town."
(Milkweed).

Paint and cut September flowers.

Grade IV.

Paint a September landscape involving blue sky, grass, distant trees, trees in the foreground, and water reflecting the color of the sky. Illustrate:

"'Neath a tall and spreading tree,
Birds and squirrels drink their tea;
Each one takes a dainty sup
From a tiny acorn cup."

Paint flowers in silhouette and in color.

Grade V.

Study a September landscape. Paint grasses and fruits in neutral tint and color. Make finders (See page 264) and use them in finding a pleasing composition. Learn the use of complementary colors. Apply in painting flowers and grasses the following: Gray-green with red, red with green, blue with orange, orange with blue, yellow with violet, and violet with yellow. Illustrate:

"This road that goes right by our door
Keeps on a hundred miles or more;
Sometimes it's just a country trail,
And there's a squirrel on the rail."

Grade VI.

Paint flowers in color with pleasing background. Make neutral value scale, thus: Draw five oblongs. Leave the upper oblong white and paint the lower one black. Paint the middle one a gray half-way between white and black. Paint a value half-way between black and the central middle value and place above black. Paint a value half-way between white and the central middle value and place below white. Make color scales in the same way. Illustrate:

"High up the old gray garden wall,
The morning-glories climb;
To kiss the stately hollyhocks,
All in the summer time."

Grade VII.

Teach pencil drawings of flowers, plants, grasses, and sedges. Emphasize the drawing in this work. Study the structure of plant and the direction of lines. Carefully render the specimens in proper tones. Paint a September landscape.

Illustrate:

"The goldenrod is yellow,
The corn is turning brown,
The trees in apple orchards
With fruit are bending down."

Grade VIII.

Make pencil drawings of plants, grasses, sedges, flowers, and fruits (Read notes on pencil rendering). Sketch September landscapes in pencil and in color. Illustrate:

"Now fades the glimmering landscape on the
sight,
And all the air a solemn stillness holds."

October Lessons.

Grade I.

Paint from large showy flowers. Use paper 9″x12.″ Paint and cut seed pods and grasses in silhouette. Paint and cut bright leaves and berries. Paint an October landscape. Paint all leaves, flowers, grasses, etc., direct from specimen. Make a leaf booklet.

Illustrate:

"Come little leaves," said the wind one day,
"Come o'er the meadow with me and play;
Put on your dresses of red and gold,
For summer has gone and the days are cold."

Grade II.

Let the children revel in color during the month of October. Paint leaves, flowers, grasses, and trees in color and in neutral tints. Study trees. Paint in color and make a tree booklet. Cut trees.

Illustrate:

"The pine tree stood in the wood,
Tapering straight and high,
Stately and high it stood
Black green against the sky,
Crowded so close it sought the blue,
And ever upward it reached and grew."

Grade III.

Paint trees, leaves, berries, and flowers in color. Make a booklet of color notes from the above. Cut oblongs of drawing paper 1″x3″ and paint splashes of color from specimens. Mount these neatly and bind into a booklet.

Illustrate:

"Oh! sun and skies and clouds of June
And flowers of June together,
Ye cannot rival for one hour
October's bright blue weather."

OCTOBER.

Grade IV.

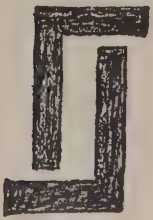
Make finders. Use finders in landscape work. Paint an October landscape. Paint on 9″x12″ paper and use finders to help select a good composition. Paint trees in color and place in landscape. Paint a flower booklet.

Illustrate:

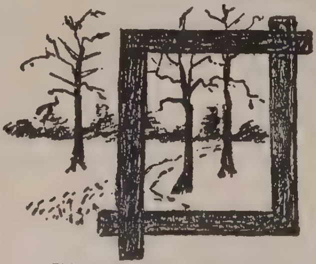
"It was late in mild October, and the long autumnal rain
Had left the summer harvest field all green with grass again;
The first sharp frosts had fallen, leaving all the woodlands gay
With the hues of summer's rainbow, or the meadow-flowers of May."

Grade V.

Make finders. Paint October landscape and use finders. Paint leaves, flowers, berries, and trees in color. Conduct brush studies from grasses, sedges, and flowers in silhouette or in neutral values. Mount these studies and bind them into a booklet. Make pencil sketches of trees.



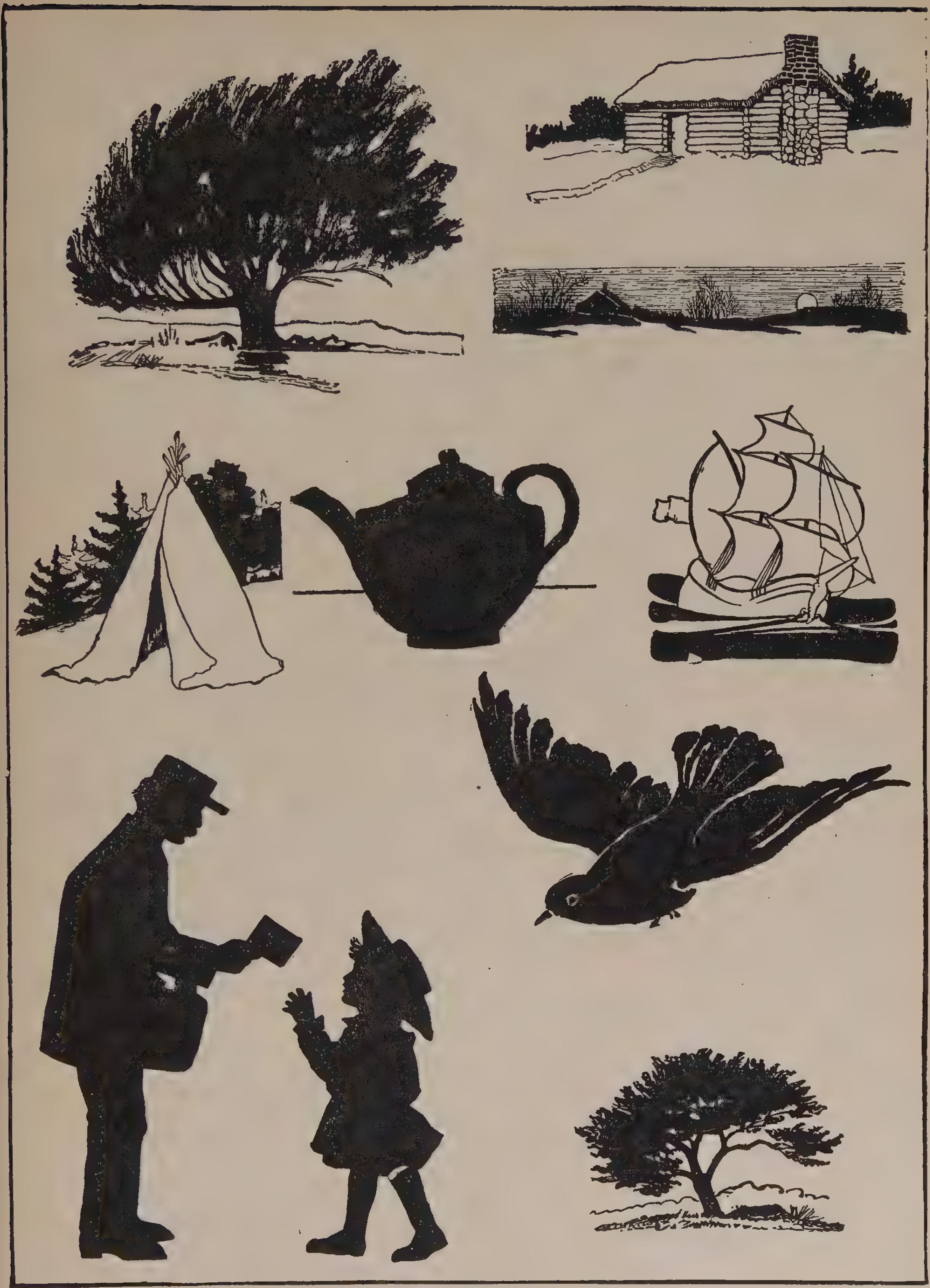
FINDER.



USE OF THE FINDER.

Illustrate:

How soft and still the autumn landscape lies,
Calmly outspread beneath the smiling skies;
As if the earth in prodigal array
Of gems and broidered robes kept holiday;
Her harvest yielded and her work all done,
Basking in beauty 'neath the autumn sun!
—*Sarah Helen Whitman.*



BRUSH DRAWING.

Grade VII.

Prepare a decorative composition from autumn leaves, fruits, berries, and flowers. Design a book cover.

Make a booklet containing designs obtained from flowers, leaves, berries, weeds, and seed pods.

Illustrate in water colors:

> Then followed the beautiful season,
> Called by the pious Acadian peasants the Summer of All Saints,
> Filled was the air with a dreamy and magical light; and the landscape
> Lay as if new-created in all the freshness of childhood.
>
> —*Longfellow.*

Grade VIII.

Make decorative landscapes from good copies. Prepare a booklet of decorative landscapes. Design a book cover (Use a decorative design).

Illustrate in water colors:

> "The world puts on its robes of glory now,
> The very flowers are tinged with deeper dyes,
> The waves are bluer, and the angels pitch
> Their shining tents along the sunset skies."

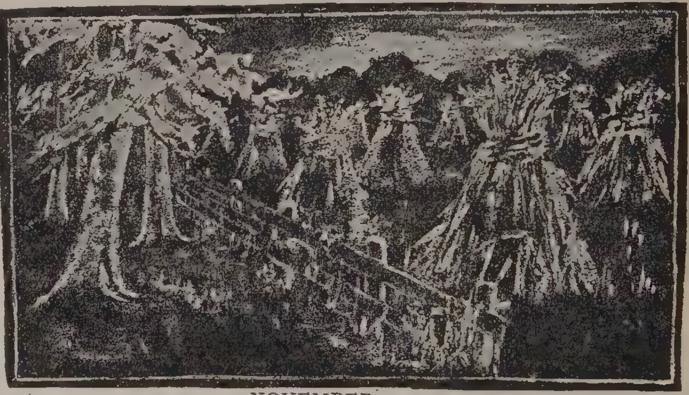
November Lessons.

> "The earth has donned a robe of sober brown,
> A restful shadow hangs o'er plain and wood;
> The leaves, in faded heaps, have nestled down
> As if to rest from frolicking were good."

Grade I.

Have the pupils make large paper cuttings of fruit. Paint fruit in color and in silhouette. Paint bare trees in neutral tints and a November landscape in color. Bind the paintings of fruit into a booklet. Illustrate:

> "The jolly Jack-o'-lantern man,
> I'm going to make him, if I can."



NOVEMBER.

Grade II.

Conduct work in large paper cuttings of pumpkins, squashes, turnips, ears of corn, etc. Paint the *Mayflower* and place it in a scene. Paint the *Mayflower* in silhouette. Paint vegetables. Illustrate:

> "Here are apples, ripe and red,
> Picked from orchard boughs o'erhead."

Grade III.

Paint fruits in silhouette and in color. Make a fruit booklet. Paint a sunset, showing color reflected in water. Learn parts of the poem Hiawatha.

Illustrate:

> "Saw the moon rise from the water,
> Rippling, rounding from the water."

Grade IV.

Begin studying still life. Paint fruits and vegetables combined with some manufactured article. Make a Thanksgiving booklet. Paint a November landscape. Illustrate:

> "When the blossoms go to sleep,
> Autumn skies are cold and gray,
> Empty nests hang on each spray,
> Little birds have flown away."

Grade V.

Begin to study still life. Paint a November landscape. Illustrate a Thanksgiving poem and bind it into a booklet. Decorate the cover with some simple Thanksgiving design. Illustrate:

When the blossoms go to sleep,
Woods are bare and brown and still,
Hushed each little laughing rill,
Faded leaves the hollow fill.

When the blossoms go to sleep
Busy squirrels homeward hie,
Droops each drowsy butterfly,
Low winds sing their lullaby.

When the blossoms go to sleep,
Snowflakes lightly bring and fling
O'er their beds soft covering,
Safe and warm they'll dream till spring.

Grade VI.

Paint a November landscape, involving sunset effects. Begin the study of still life. Use finder and work for good composition. Bind the still life paintings into a booklet and decorate the cover. Illustrate:

"The brown birds are flying
Like leaves through the sky,
The flow'rets are calling,
'Dear birdlings, good-bye.'"

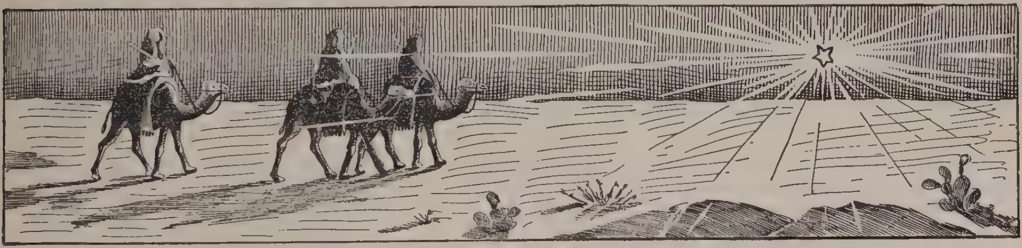
Grades VII and VIII.

Paint a November landscape involving sunset effects. Paint still life studies.

December Lessons.

"While stars of Christmas shine,
Lighting the skies,
Let only loving looks
Beam from your eyes.
While bells of Christmas ring,
Joyous and clear,

Speak only loving words,
All mirth and cheer.
Give only loving gifts,
And in love take,
Gladden the poor and sad,
For love's dear sake."



DECEMBER.

Grades I, II and III.

Continue the landscape work. Illustrate Christmas poems and thoughts by drawings, paintings, and cuttings. Insist on large free work. Make Christmas gifts. Emphasize the thought of giving. Paint pine trees and then place them in a landscape. Study several Madonnas.

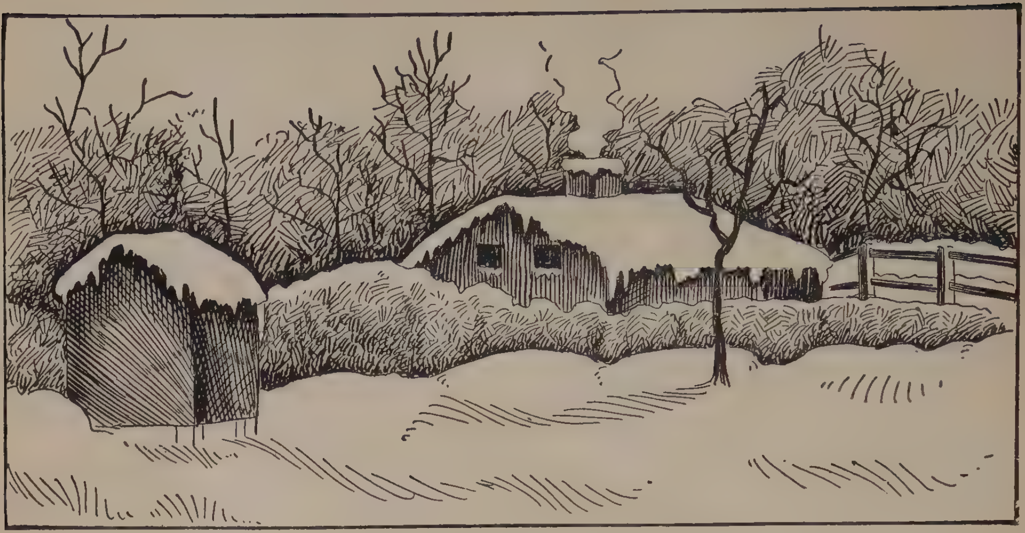
Grade IV.

Paint a December landscape in water colors. Illustrate a Christmas poem and bind it into a booklet. Design a cover for a booklet. Design other book covers. Make Christmas gifts.

Grades V, VI, VII and VIII.

Paint a December landscape. Make stencil designs from a seed or flower motif and apply them in making Christmas articles, fancy bags, book-bags, table covers, runners, sofa pillows, curtains, etc.

January Lessons.



JANUARY.

"Wintry winds are blowing,
Trees are bare, 'tis snowing;
Beneath the drifts the flowers are buried deep,
But in their icy dwelling
Little brooks are telling
That winter is but springtime fast asleep."

Grades I, II and III.

Paint January landscapes. Use cuttings of snowflakes in designs. Place some design on a box cover or some other articles to be decorated. Draw around the design and color in some harmonious combination. Draw, cut, and paint objects received by the children as Christmas gifts. Conduct a line of action drawings.

Grade IV.

Continue still life study. Draw a January landscape in color. Illustrate a January poem and make a booklet. Make an original design for a book-bag. Make a book-bag 10 by 12 inches from burlap. Color the design with watercolors and use a buttonhole or outline stitch to outline the design.

Grade V.

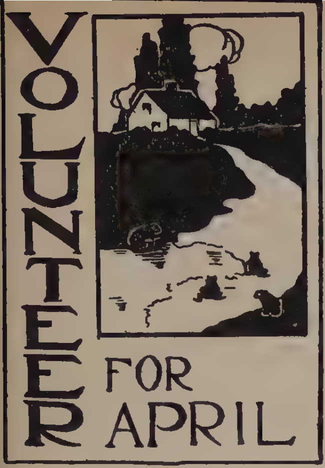
Continue still life study. Paint a snow scene. Make an original border design from a flower or a seed pod motif. Use paper 12 by 4 inches. Illustrate a January poem.

Grade VI.

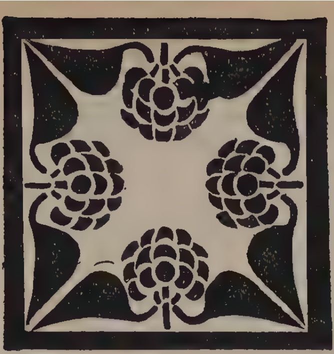
Continue still life drawing. Paint a January landscape. Make an original wall paper design from a flower or a seed pod. Use paper 8 by 8 inches. Paint a design in analogous colors. Illustrate the January poem.

Grades VII and VIII.

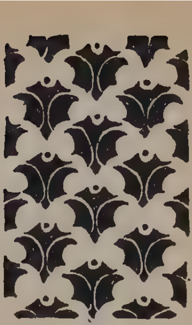
Continue drawing still life in colors. Paint a January landscape. Design and paint a poster announcing a school entertainment.



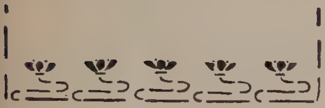
For Book Cover.



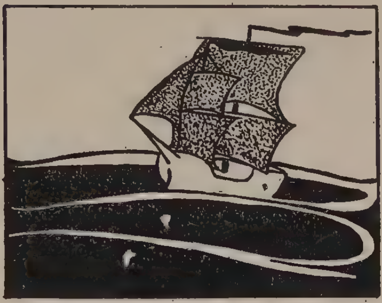
For Sofa Pillow.



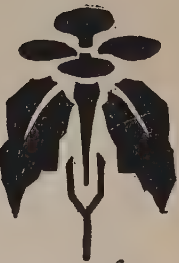
For Wall Paper.



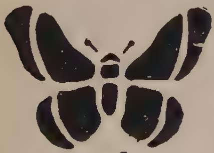
For Runner.



Decorative Design.



Unit for Stencil.



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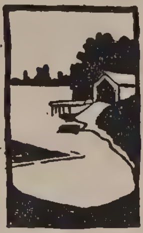

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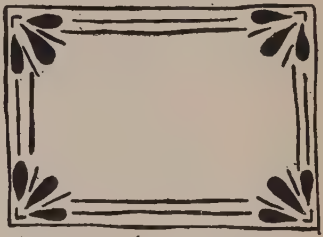
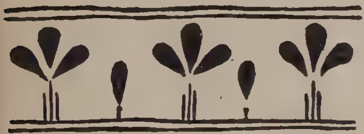
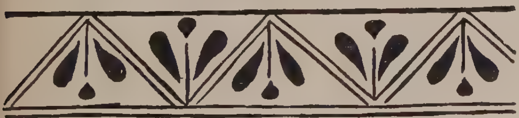


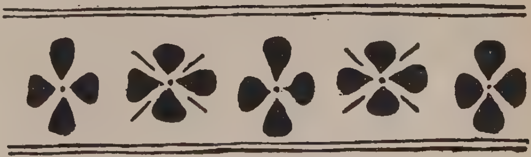
For Book Cover.



Border Design.



Border Design



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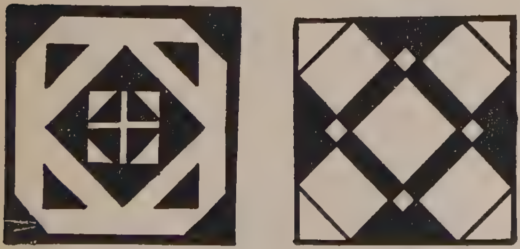
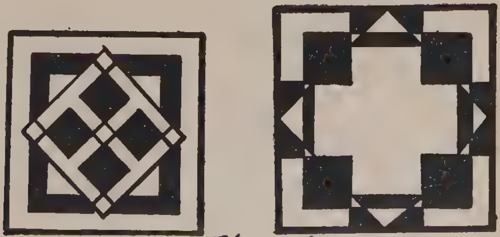


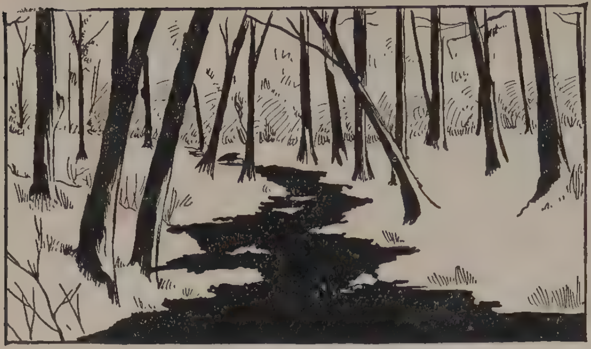
Paper Weaving.



Paper Weaving.

DESIGNS AND MODELS FOR DRAWING, ETC.

February Lessons.



FEBRUARY.

"When shines the February sun,
When melting snows begin to run,
When baby brooks, though sound asleep,
Must from their winter cradle peep."

Grades I, II and III.

Make large paper cuttings to illustrate incidents in the lives of Washington, Longfellow and Lincoln. Make a booklet of cuttings. Give plenty of action drawings and blackboard work during the month. Illustrate poems. Much of the work in February should be done in silhouette.

Grade IV.

Begin action work and pose drawing. Give a great deal of silhouette work. Make a booklet of silhouettes taken from the lives of Washington or Lincoln. Design a book cover.

Grades V, VI, VII and VIII.

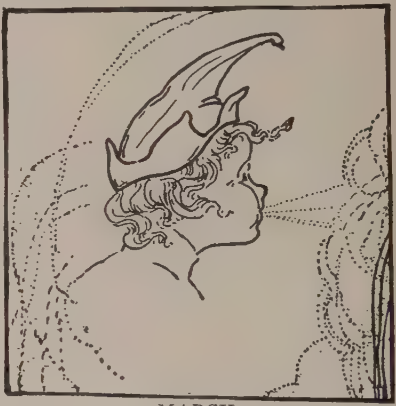
Begin pose drawings. Study for leading lines in the pose and work for accurate drawings. Study the lives of Washington, Lincoln, and Longfellow, and illustrate incidents in the lives of these men. Make a booklet of illustrations from the life of any one of them. Design an appropriate cover page. Paint stained glass windows.

March Lessons.

"When the March winds whistle shrill,
And go tearing down the hill,
And the melting snows run free,
Then it's clear to you and me
Spring will come as it did last year,
Spring is coming, never fear."

Grades I, II and III.

Silhouette drawings of animals. Make large cuttings of animals. Make paintings of animals in color. If possible bring animals into the schoolroom (a dog, cat, hen, rooster, rabbit, squirrel, etc.). Illustrate wind poems and stories.



MARCH.

Grade IV.

Study the work of the wind. Paint a windmill and place it in a landscape. Make a booklet illustrating the work of the wind. Design a cover page. Paint birds in colors.

Grades V and VI.

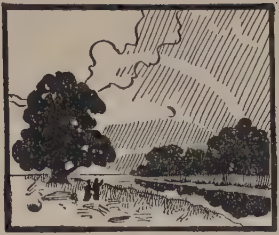
Paint birds and mount them with appropriate poems. Make a booklet of birds and design the cover page. Draw a perspective as related to rectangular objects and landscapes. Paint a marine scene.

Grades VII and VIII.

Study perspective as related to rectangular objects. Draw boxes, books, chairs, tables, etc. Paint a marine scene, illustrating some poem.

April Lessons.

My heart leaps up;
I behold a rainbow—
So was it when I was a child;
So is it now I am a man;
So shall it be when I grow old,
Or let me die.
—*Wordsworth.*



APRIL.

Grades I, II and III.

Paint spring landscapes. Paint trees and place them in a landscape. Paint spring flowers. Illustrate spring poems. Make large cuttings to illustrate the month of April. Make a booklet of painted flowers.

Grade IV.

Paint spring landscapes. Make a landscape booklet. Study and paint trees. Paint spring flowers. Illustrate spring poems.

Grades V and VI.

Paint trees. Make a tree booklet, combining painted trees and appropriate poems. Paint spring landscapes. Continue the study of perspective as related to landscapes. Illustrate the April poem.

Grade VII.

Continue the study of perspective as related to rectangular objects and landscapes. Paint spring landscapes. Illustrate the April poem and bind it into the booklet. Paint a spring poem in neutral values and in colors.

Grade VIII.

Draw a house in perspective. Draw a house in free-hand perspective and place it in a landscape with proper environments. Draw the interior of a room and decorate it in harmonious colorings.

May Lessons.

"All the birds and bees are singing,
All the lily bells are ringing,
All the brooks run full of laughter,
And the wind comes whispering after.
'What is this?' they sing and say.
'It is May!'"

MAY.

Grades I, II, III, IV, V, VI, VII and VIII.

Review any part of the year's work. Illustrate the May poem. Paint landscapes, birds, and flowers.

Water Colors.

(a) Children must have plenty of exercise in handling water colors. (b) Teach the child from the beginning to mix colors in his brush and lift all colors directly from the cake. (c) Do not let him "work over" his colors. (d) In painting flowers, he should lift the fresh colors from the cakes and place them on paper at once. For instance: If he wishes to paint the sunflower in color, he should dampen his brush, fill it with yellow and a touch of red, and apply immediately to the paper. The brown should be mixed in his brush and applied to the center of the flower. If the leaves are painted in the same manner, fresh, pleasing colors will be obtained. Paint directly from the flower. Do not draw and then paint. In painting landscapes, work for effect and not detail. All paper should be dampened. Avoid hard lines. (e) The mixing of color for the design should be done in the paint pans.

Perspective.

The *Horizon* is the apparent junction of the earth and sky. The *Line of the Horizon* is the apparent line where the earth and sky seem to meet.

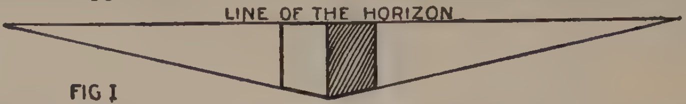


FIG I

All receding parallel lines meet at the same point, if they are sufficiently extended. If the drawing is correct, this point is on the horizon line and is called the *vanishing point* (See Fig. I).

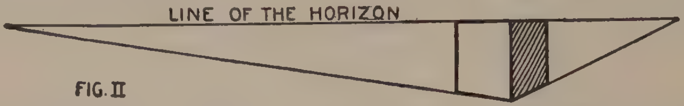


FIG. II

When the faces of rectangular objects are viewed obliquely, they appear foreshortened (See Fig. II).

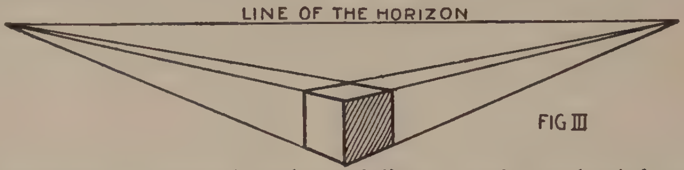


FIG III

When the edges of parallel horizontal lines recede to the left of an object, they appear to converge to a vanishing point at the left of the object. When they recede to the right of the object, they appear to converge to a vanishing point at the right of the object (See Fig. III).

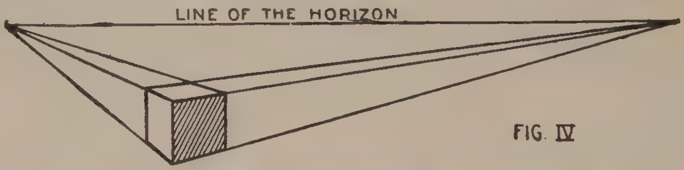


FIG. IV

When the rectangular faces of an object are turned away unequally, the vanishing points are unequally distant from the nearest point of observation. The greater the angle, the nearer will be the vanishing point (See Fig. IV).

The appearance of a face view of a circle is always a circle (See Fig. V).

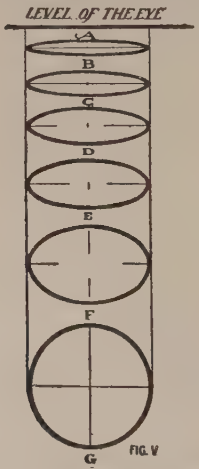


FIG. V

When a circle is seen obliquely, it always appears like an ellipse (See Fig. V).

Pencil Drawing.

Use a soft pencil. The M. S. (medium soft) is very good for ordinary work, but the pencil intended for drawing should not be used for writing exercises. While it is not wise to give too many directions in pencil rendering, it is a good plan to insist upon the pupils working directly and freely. They should never be allowed to work over and over the paper, for by so doing a shiny effect is produced. When a dark tone is desired, the child should immediately produce that tone by a strong pressure of the pencil. Show the students specimens of good work and let them copy. Lead them to do original drawings.

Poems for Illustrations.

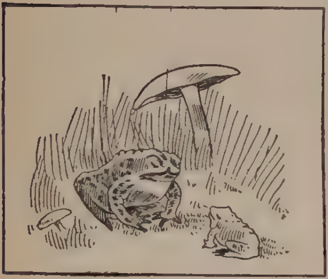


FIG. I.

"The Owl and the Pussy Cat went to sea
In a beautiful pea green boat.
'Have you seen the sunshine fairies
Peeping out at you—
Red and orange, green and yellow,
Violet and blue?'"

"Over in the meadow,
In the sand, in the sun,
Lived an old mother-toad
And her little toadie one."
(See Fig. I.)

"Over in the meadow,
Where the streams run blue,
Lived an old mother-fish
And her little fishes two."
(See Fig. II.)

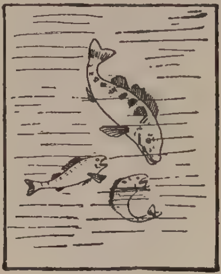


FIG. II.

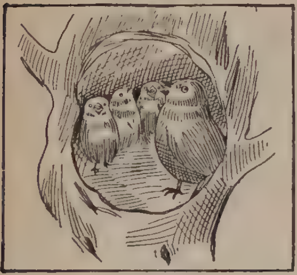


FIG. III.

"Over in the meadow,
In a hole in a tree,
Lived a mother-bluebird
And her little birdies three."
(See Fig. III.)

"Over in the meadow,
In a snug bee-hive,
Lived a mother-honeybee
And her little honeys five."
(See Fig. IV.)

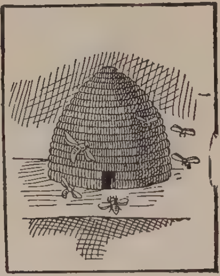


FIG. IV.

Wynken, Blynken, and Nod one night
Sailed off in a wooden shoe.
—*Eugene Field.*

"I know a house so fair and fine,
No flaw in it can you detect;
A silver beauty smooths each line,
Drawn by its patient architect."
(Spider Web).

"Clouds of gray are in the sky,
Flocks of birds are passing by."

"By the shining big sea water,
Stood the wigwam of Nokomis."

"High on the branch of a walnut tree,
A bright eyed squirrel sat;
What was he thinking so earnestly
And what was he looking at?"

"Apple blossoms budding, blowing
In the soft May air;
Cups with sunshine overflowing,
Flakes of fragrance drifting, snowing,
Showering everywhere."

Bring the comb and play upon it!
Marching here we come;
Willie cocks his highland bonnet,
Jennie beats the drum.
Mary Jane commands the party,
Peter leads the rear:
Feet in time, alert and hearty,
Each a grenadier.
—*Robert Louis Stevenson.*
(See Fig. V.)

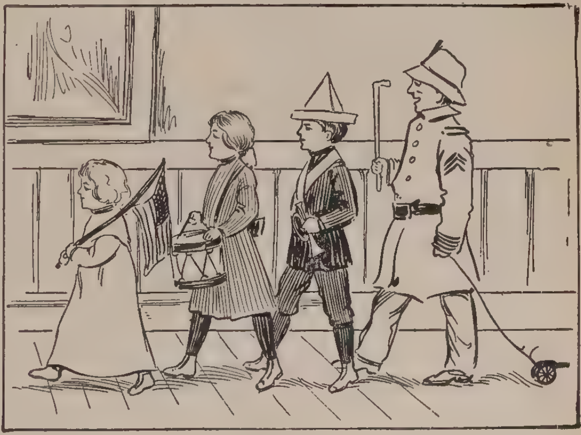
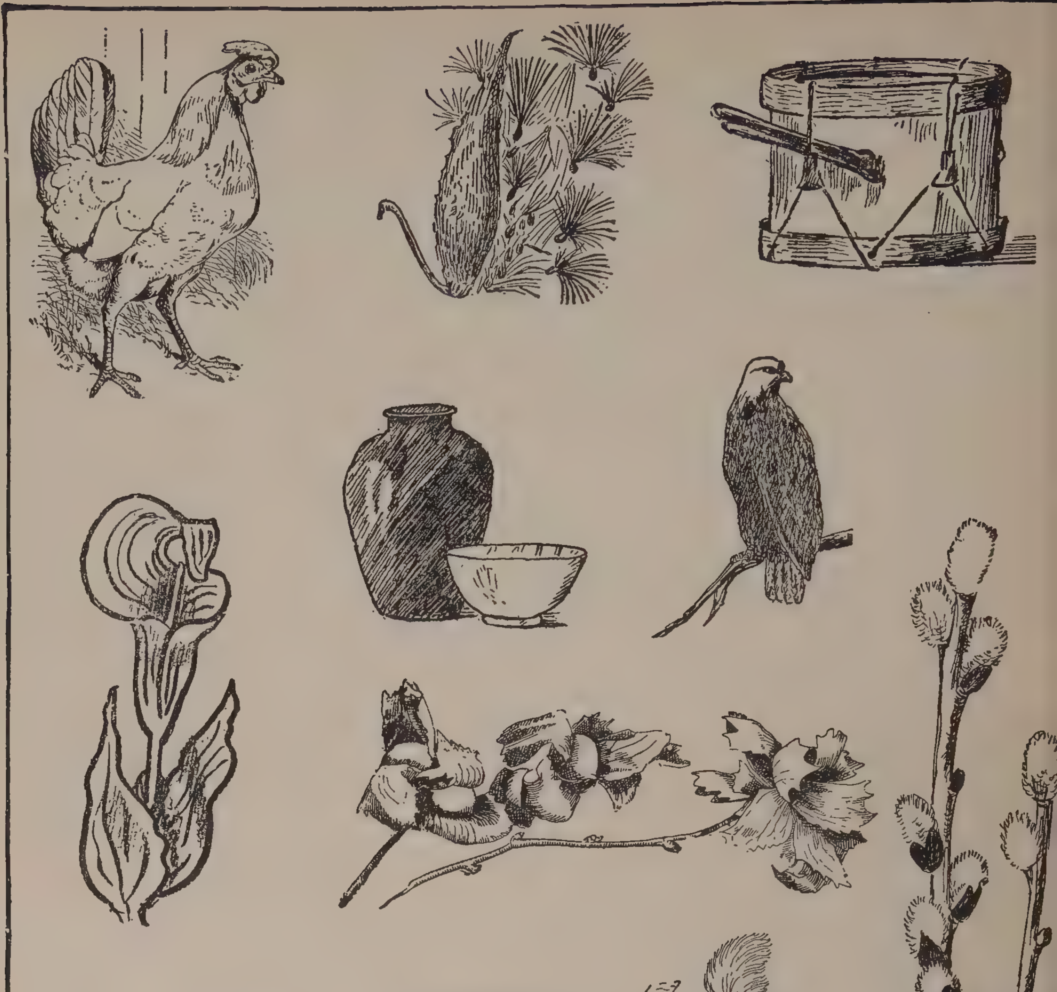


FIG. V.

How do you like to go up in a swing,
Up in the air so blue?
Oh, I do think it the pleasantest thing
Ever a child can do.
—*Robert Louis Stevenson.*



PENCIL DRAWING.

"Once there was a little birdie,
Sitting in a shady tree,
And this song sang little birdie,
'God is good—He cares for me.'"

"Three little bunnies
Out for a run
In the bright moonlight,
O! what fun."

"The bluebird chants, from the elm's long branches,
A hymn to welcome the budding year."

"A rainbow in the morning
Is the sailor's warning."
"A fair little girl sat under a tree,
Sewing as long as her eyes could see."

"Long may it wave
O'er the land of the free
And the home of the brave."

A little black cricket
Lives down in a thicket,
O, a jolly young cricket so gay!
—*Selected.*

The moon has a face like the clock in the hall;
She shines on thieves on the garden wall,
On streets and fields and the harbor quays,
And birdies asleep in the forks of the trees.
—*Robert Louis Stevenson.*

The friendly cow, all red and white,
I love with all my heart;
She gives me cream with all her might
To eat with apple tart.
—*Robert Louis Stevenson.*

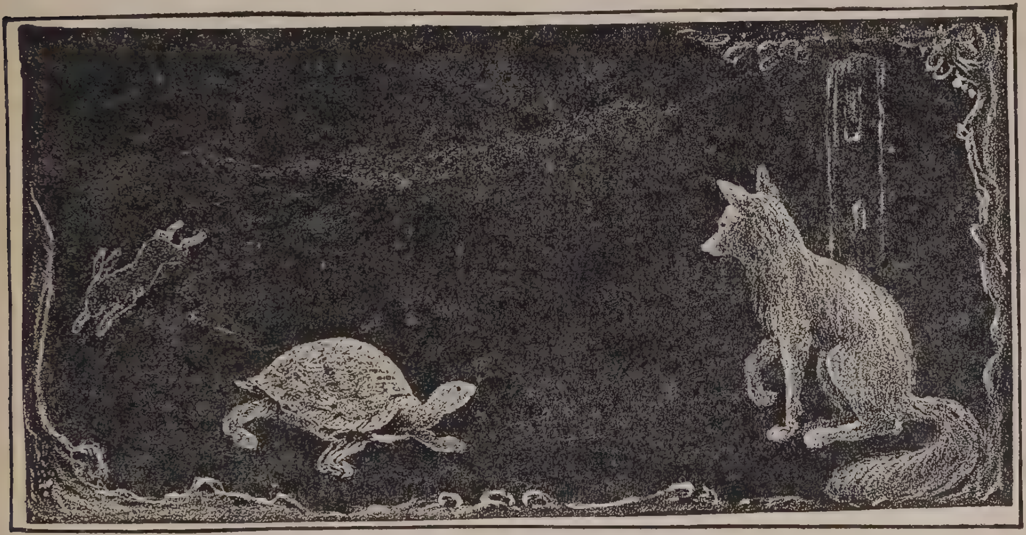
"On goes the river
And out past the mill,
Away down the valley,
Away down the hill."

"What do you think I saw
All bundled up in fur,
Swinging at ease on a willow spray?
Nine little pussies, plump and gray;
But I could not find a sign of a claw
Nor even the tip of a velvet paw;
What do you think they were?"
(*Pussy Willows*).

"High up the old gray garden wall
The morning-glories climb,
To kiss the stately hollyhocks,
All in the summer time."

"Hang a lantern aloft in the belfry tower
Of the old North Church as a signal light."

Robins in the tree top,
Blossoms in the grass,
Green things a-growing
Everywhere we pass.
—*T. B. Aldrich.*



THE HARE AND THE TORTOISE.

Stories for Illustration.

The Sheep and Pig that Set Up House.
The Lion and the Mouse.
The Foxes and Ducks.
The Little Red Hen.
The Old Woman and Her Pig.
Cinderella.
The Three Pigs.
The Three Bears.
The Hare and the Tortoise.
The Story of Chicken Little.
The Donkey and the Salt.
Clytie.
The Poplar Tree.
Jack and the Bean Stalk.

Many stories used in connection with reading, literature, language, and history should be used for illustrations.

Paper Cutting.

In drawing, the little child seems to naturally express the details and to lose sight of the large, important facts. He does not see any relation of these details to the whole. Free-hand cutting will do much to overcome this tendency. There is magic in a pair of scissors and a piece of paper.

> "Some speak with brush and palette,
> And some with pen and ink,
> But to speak with a pair of scissors
> Is the nicest way, we think."

Insist on large free-hand cuttings. Never let the student draw and then cut. He should early learn to give his own free self-expression and idea of a story or object through this medium. The teacher herself should learn to cut quickly and well.

Large cuttings from black paper should be pasted on large cards to be used as models. Oftentimes the cutting should be direct from the object. The teacher can prepare cards to meet the needs of the day. The following cuttings to be prepared by the teacher will be found very helpful:

Cuttings of tame animals.
Cuttings of wild animals.
Cuttings from nature.
Mother Goose poems illustrated.
Other poems illustrated.

Planting a Tree.

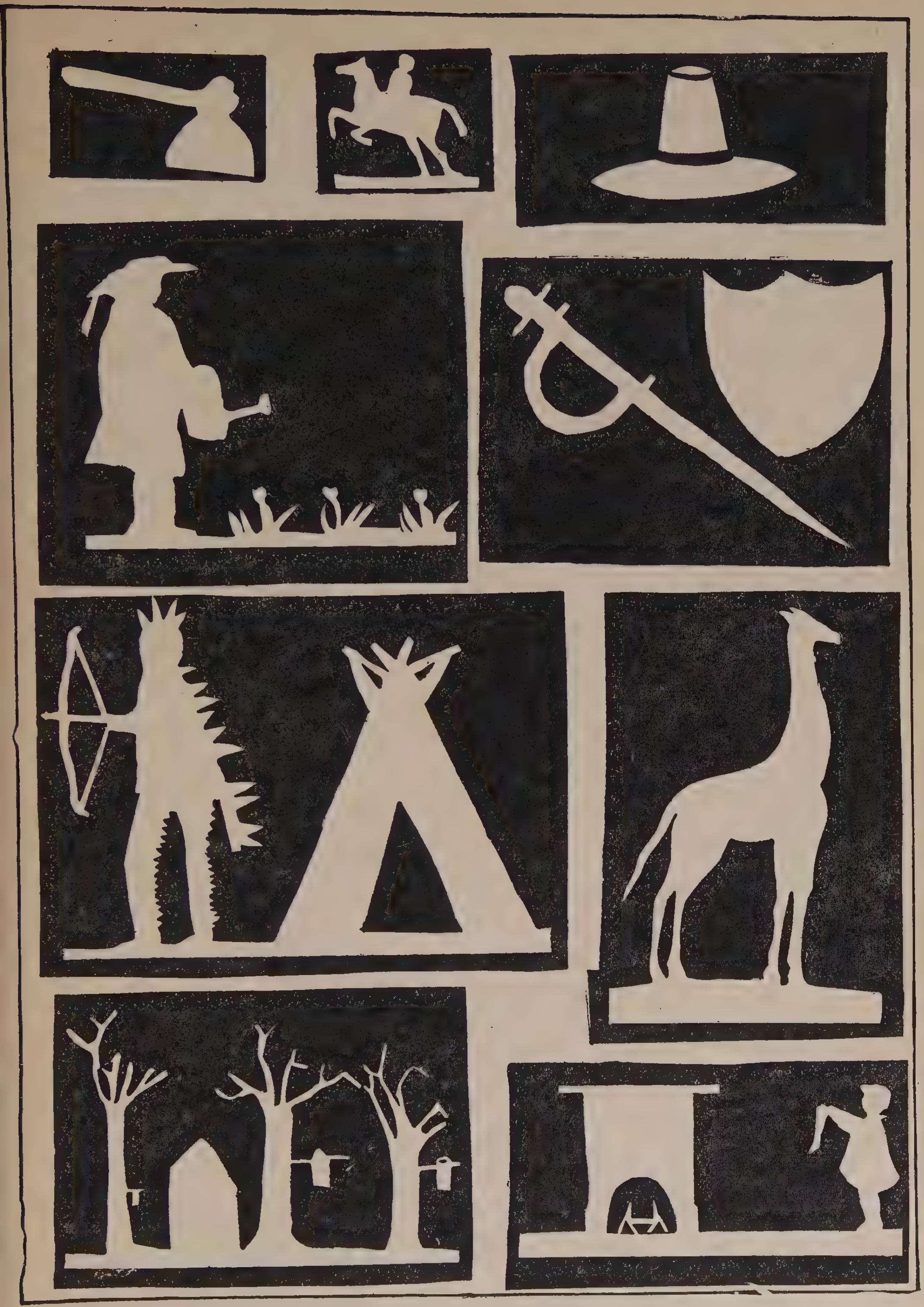
(Commit to memory).

What does he plant who plants a tree?
He plants the friend of earth and sky;
He plants the flag of breezes free;
The shaft of beauty hovering high;
He plants a home to heaven a-nigh,
For song and mother—croon of bird
In hushed and happy twilight heard,—
The treble of heaven's harmony,—
These things he plants who plants a tree.

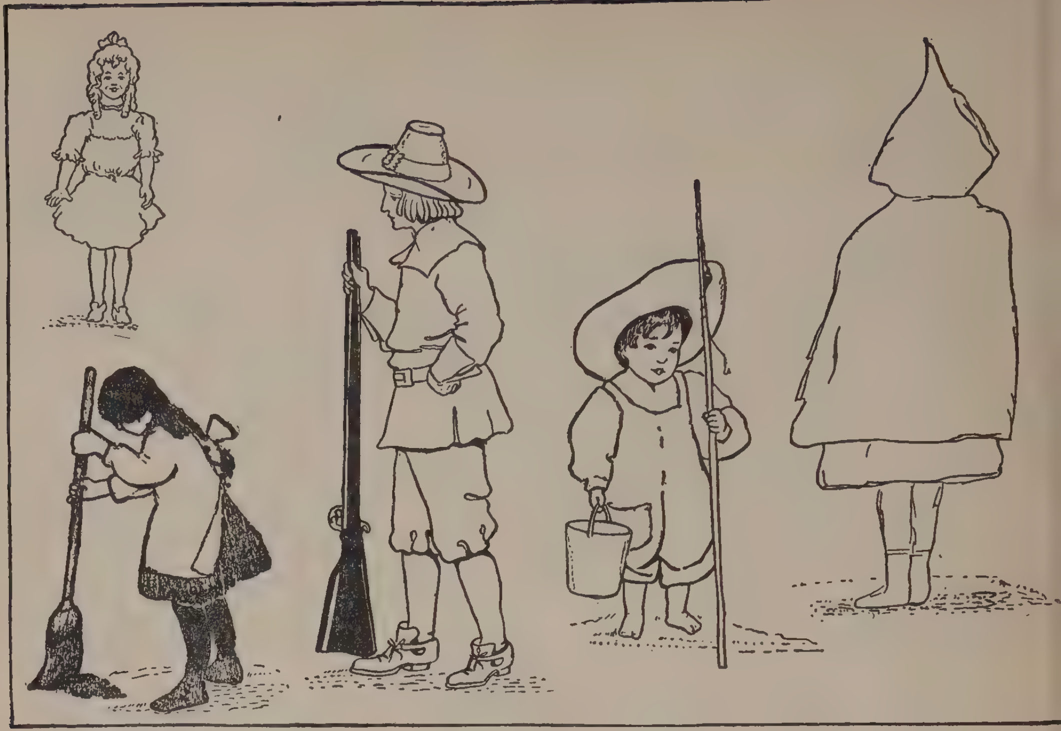
What does he plant who plants a tree?
He plants cool shade and tender rain,
And seed and bud of days to be,
And years that fade and flush again;
He plants the glory of the plain;
He plants the forest heritage;
The harvest of a coming age;
The joys that unborn eyes shall see,—
These things he plants who plants a tree.

What does he plant who plants a tree?
He plants in sap and leaf and wood,
In love of home and loyalty,
And forecast thought of civic good,—
His blessings on the neighborhood
Who, in the hollow of His hand,
Holds all the growth of all the land,
A nation's growth from sea to sea
Stirs in his heart who plants a tree.

—*Cooley.*



FREE-HAND PAPER CUTTING.



POSE CUTTING AND DRAWING

Pose Cutting and Stories Illustrated.

After the children have gained some skill in cutting from models, read a story or poem and let them illustrate with scissors. For instance: We wish the children to tell the story (with scissors and paper) of the three bears. Before giving the story, have large cuttings of a bear, house, table, little girl, chair, bed, bowl, spoon, tree, etc., in plain view. Tell the story. Retell the story with help of the children, thus: Once there was a little girl named Goldenhair. Do you see anything that will help you in cutting the little girl's picture? The children will tell that they see a picture of a little girl. Ask them if they will tell you where the little girl was going and if they see anything that will help them in their cutting of a little girl lifting the latch of the door. Ask them to tell this much of the story with their scissors (Fig. I.). When the little girl lifted the latch of the bears' house and entered, what did she see on the table? They will tell you that she saw three bowls. Question them in regard to the relative size of the bowls, and ask them what they see that will help them to tell that part of the story. They will say that they see a picture of a table, a bowl, and a spoon. Tell them to cut the table and place the bowls containing the spoons upon the table, being very careful not

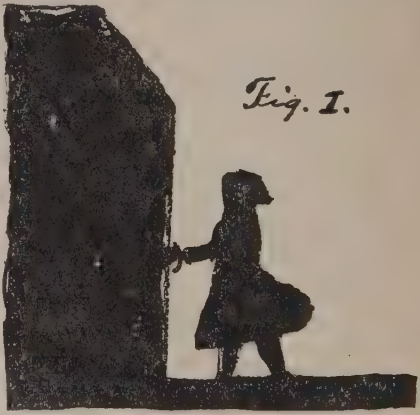


Fig. I.

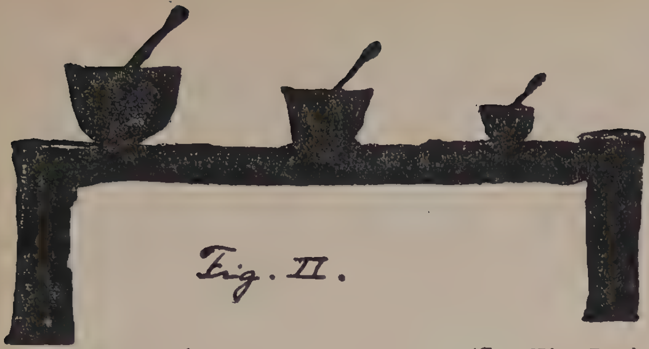


Fig. II.

to have the bowls the same size (Fig. II.).

How many chairs did Goldenhair find, and were they all the same size? Cut the three chairs, remembering that they were not the same size (See Fig. III.).

How many beds did Goldenhair find? Cut the three beds and show Goldenhair asleep in the little bear's bed (See Fig. IV.).

When Goldenhair was asleep, who came home, and what did they find? Were the bears all the same size? Cut the three bears (See Fig. V.).

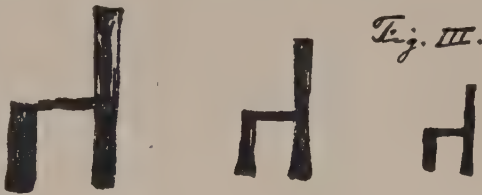


Fig. III.

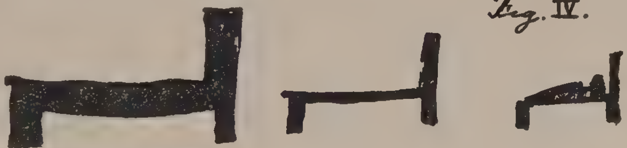


Fig. IV.

When Goldenhair awoke and saw the three bears, what did she do? Did the bears run after Goldenhair? No; they were kind bears, and stood and looked at her as she ran through the woods. Cut the three bears looking at Goldenhair running through the woods (Fig. VI.).

After a lesson has been given in this way, it will furnish a foundation for a great deal of undirected seat work. Many of the brush studies given may be used for paper cutting.

All figures should be learned so well that they can be drawn easily and with a fair degree of accuracy.

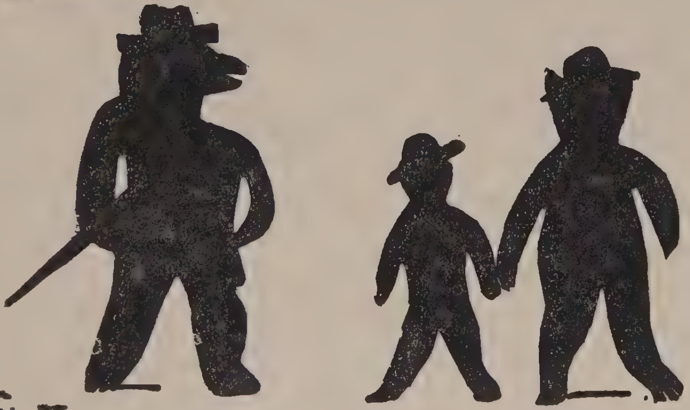


Fig. V.

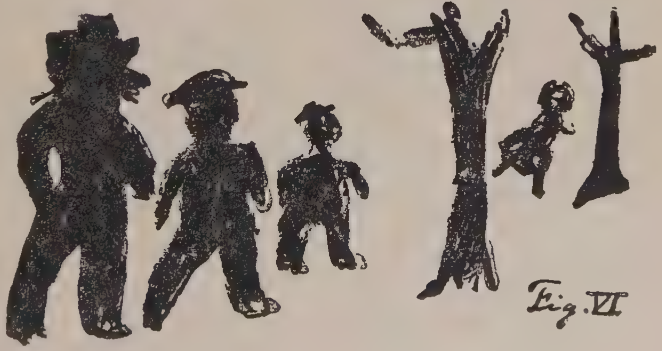
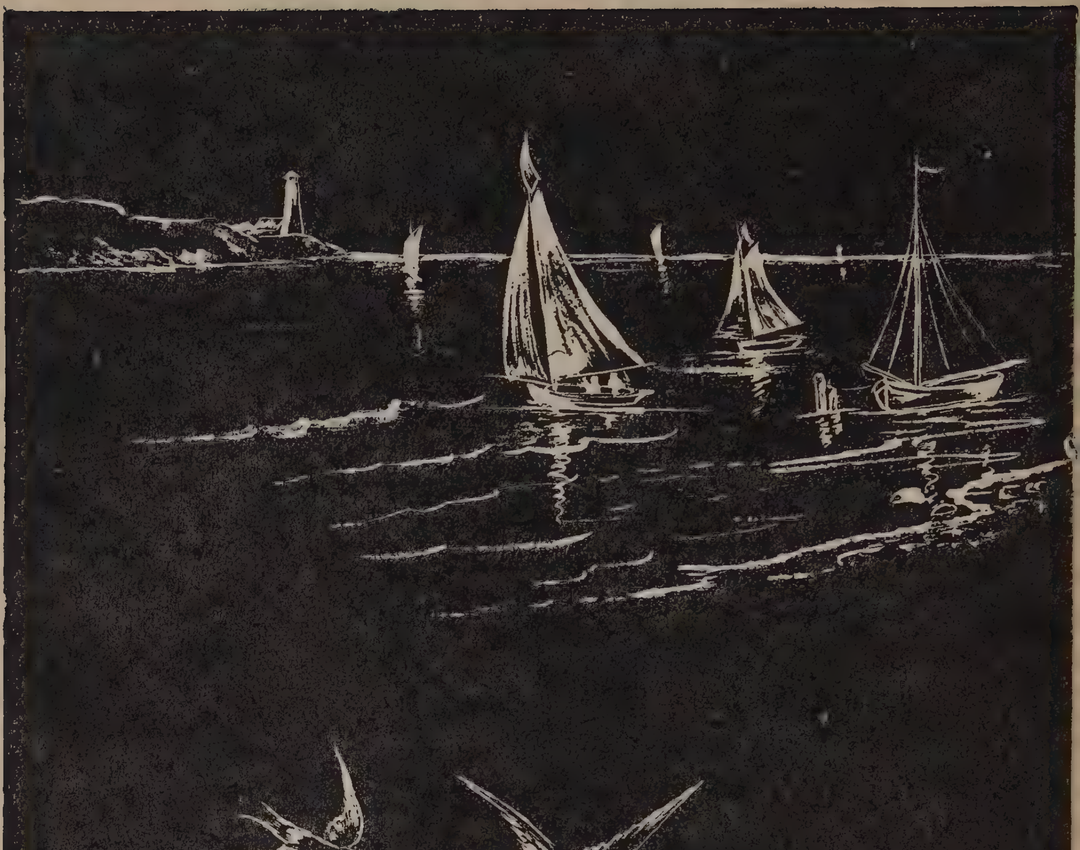


Fig. VI



BLACKBOARD LESSON.

Picture Study.

Grade I.

Madonna of the Chair	Raphael
The Christ Child	Murillo
Feeding Her Birds	Millet
Can't You Talk?	Holmes

Grade II.

Brittany Sheep	Bonheur
Sistine Madonna	Raphael
Hiawatha	Taylor
Two Families	Walter

Grade III.

The Gleaners	Millet
The Horse Fair	Bonheur
Saint Anthony and the Christ Child	Murillo

Grade IV.

The Helping Hand	Renouef
The Angelus	Millet
In the Country	LeRolle
Two Families	Walter

Grade V.

Ploughing	Bonheur
The Horseshoer	Landseer
Morning	Corot
Lincoln	Saint Gaudens

Grades VI, VII and VIII.

There are twelve pictures quite generally accepted as masterpieces. These can be obtained in the Perry Pictures and should be placed on exhibition in every room above the 5th grade. Many should be studied. They are as follows:

Transfiguration, Raphael, Vatican, Rome.
Sistine Madonna, Raphael, Dresden Gallery.
Aurora, Guido, Pallazzo Rospigliosi, Rome.
Last Supper, Leonardo Vinci, Milan.
Last Judgment, Michael Angelo, Sistine Chapel, Rome.
Assumption, Titian, Academy Cathedral.
Night Watch, Rembrandt, Amsterdam Gallery.
Coronation of the Virgin, Fra Angelico, Louvre, Paris.
Adoration of the Lamb, Van Eyck, Church of Saint Bavon Ghent.
Immaculate Conception, Murillo, Louvre, Paris.
Madonna, Holbein, Dresden Gallery.

In addition to these twelve great pictures, the pupils should have a knowledge of the following:

Moses	Michael Angelo	*Oxen Ploughing*	Bonheur
Jesus in the Temple	Hoffman	*Hope*	Burne-Jones
Sir Galahad	Watts	*Frieze of the Prophets*	Sargent
Windmill	Van Ruysdael	*Adam and Eve*	Dürer

Exhibition of Specimens.

Three or four specimens from each drawing lesson should be carefully mounted and placed on exhibition in the room. The colored papers, called *Tinted Drawing and Construction Papers,* make very good and inexpensive mounts. Oftentimes it is wise to place an entire lesson on exhibition.

Do not scatter the display work. One place in the room should be reserved for drawing and hand work. An unused blackboard over a radiator or the top of a long, high blackboard can be used for this purpose. A large screen covered with harmonious colors is very convenient.

Physics

> Blessings on Science! When the earth seemed old,
> When Faith grew doting, and the Reason cold,
> 'Twas she discovered that the world was young,
> And taught a language to its lisping tongue:
> 'Twas she disclosed a future to its view,
> And made old knowledge pale before the new.
>
> —*Charles Mackey.*

Physics is the branch of science which treats of the laws and properties of matter. It relates in particular to the general properties of bodies and considers their modification by the agencies of heat, light, gravitation, magnetism, and electricity.

This work of reference, on page 2205, introduces the general subject under the title of PHYSICS and gives a very full treatment of the related topics. Students will find the treatment very helpful for home and school work. In addition to the special articles, attention is called to the following

Outline on Physics.

- I. DEFINITION.
- II. BRANCHES.
  - 1. Physical science.
  - 2. Natural science.
- III. MATTER.
  - 1. General properties.
    - A. Extension.
    - B. Impenetrability.
    - C. Divisibility.
    - D. Porosity.
    - E. Indestructibility.
  - 2. Specific properties.
    - A. Ductility.
    - B. Malleability.
    - C. Tenacity.
    - D. Elasticity.
    - E. Hardness.
    - F. Brittleness.
- IV. DYNAMICS.
  - 1. Statics.
  - 2. Kinetics.
    - A. Laws (Three primary).
      - a. Inertia—Power of inertia.
      - b. Momentum.
  - 3. Force.
    - A. Systems of measuring.
      - a. Metric—Dyne, unit of.
      - b. English—Poundal, standard of.
      - c. Horse power.
    - B. Effects produced by action
      - a. Point of application.
      - b. Direction.
      - c. Intensity.
    - C. Resolution.
    - D. Composition of forces.
    - E. Classes.
      - a. Parallel.
      - b. Constant.
      - c. Accelerating.
      - d. Resultant.
      - e. Uniform.
      - f. Variable.
    - F. Parallelogram of forces.
    - G. Unit.
    - H. Centrifugal and centripetal.
    - I. Tangent.
    - J. Field.

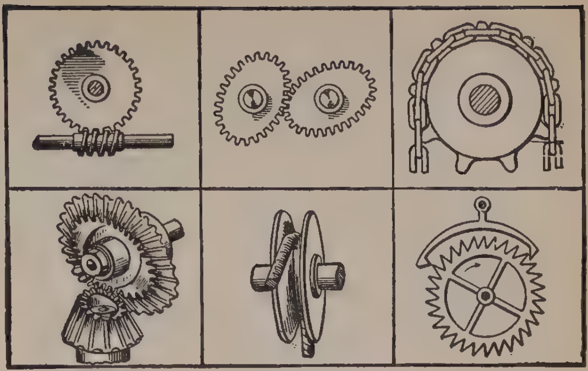
4. Attraction.
    A. Holds together molecules of different kinds.
    B. Takes place between two solids; solid and liquid; or solid and gas.
    C. Acts only at insensible distances.
    D. Differs from chemical affinity.
    E. Capillarity.
    F. Diffusion.
    G. Osmosis.
    H. Solution.
5. Cohesion.
    A. Holds together molecules of the same kind or body.
    B. Strong in solids.
    C. Weak in liquids.
    D. Absent in gases.
    E. Altered by tempering.
    F. Forms.
6. Gravity.
    A. Laws.
    B. Forces—Attractive and projectile.
    C. Mass and weight.
    D. Specific gravity.
    E. Center of gravity.
    F. Falling bodies.
    G. Moving bodies.
    H. Pendulum.
        a. Movements.
        b. Laws.
        c. Kinds.
        d. Uses.

V. MECHANICAL POWERS.

1. Wedge.
2. Screw.
3. Inclined plane.
4. Lever.
5. Pulley.
6. Wheel and axle.

VI. HYDROSTATICS.

1. Pressure and equilibrium of liquids.
2. Rules.
3. Pascal's law.
4. Demonstrations.
5. Machinery.
6. Equilibrium of floating bodies.
7. Buoyancy of liquids.
8. Specific gravity of liquids.
9. Laws of equilibrium (4).



WHEELS.

Screw Gear. Elliptical Gears. Sprocket Wheel.
Bevel Gears. Pulley. Escapement.

VII. PNEUMATICS.

1. Gas.
    A. Molecules—Move freely.
    B. Repulsive tendency.
    C. Properties.
        a. Density.
        b. Weight.
        c. Pressure.
        d. Elasticity.
        e. Condensation.
        f. Rarefaction.
        g. Equilibrium.
        h. Diffusion.
    D. Machines.
    E. Tools.
        a. Percussion.
        b. Rotary.

VIII. MAGNETISM.

1. Origin of name.
2. Magnetite.
3. Magnet.
    A. Natural and artificial.
    B. Temporary or permanent.
    C. Poles.
    D. Paramagnetic or diamagnetic.
    E. Field.
4. Compass.
    A. Needle.
    B. Declination.
    C. Variation.
    D. Inclination.
    E. Dipping.
    F. Uses.
    G. Kinds.

IX. OTHER DIVISIONS.

1. Sound.
2. Light.
3. Heat.
4. Electricity.

X. INSTRUMENTS.

Accumulator.
Aërostatic Press.
Air Compressor.
Air Pump.
Archimedes' Screw.
Arc Light.
Argand Lamp.
Armature.
Balance.
Barometer.
Barker's Mill.
Blowpipe.
Compass.
Camera Lucida.
Camera Obscura.
Compass.
Crookes' Tubes.
Cyameter.
Dynamo.
Electric Generator.
Electric Light.
Electric Meter.
Electric Motor.
Electrometer.
Field Glass.
Galvanic Battery.
Galvanometer.
Geissler's Tube.
Induction Coil.
Insulator.
Kinetoscope.
Leyden Jar.
Magic Lantern.
Magnet.
Microscope.
Mirror.
Opera Glass.
Prism.
Siphon.
Spectroscope.
Tuning Fork.
Voltmeter.

Questions in Physics.

Of what does the science of physics treat? Name its two general divisions.

State the three forms of matter. Name its general properties.

What is the atomic theory, and by whom was it originated? 180.

State the three principal laws of force according to Newton.

What is a spectrum? Name in order the series of colors.

Distinguish between cohesion and adhesion.

What is gravity? Specific gravity has reference to what? 1184.

What would become of loose objects on the earth's surface if gravity did not exist?

By whom were the steam engine and the steam hammer invented, and of what use are they?

With what form of matter does pneumatics deal? Tell of the uses of gas, natural and artificial.

Describe the pulley. To what power does it belong? 2332.

Tell of the origin of the name magnetism. Give names of the various kinds of magnets.

State the four laws of equilibrium in the study of hydrostatics. 1350.

For what are the following used: barometer, galvanometer, electric meter, and voltmeter?

How may air be liquefied? For what is it then useful? 1600.

What are extension and expansion, and by what are they caused?

What is a lever? Describe three classes.

How are annealing and tempering accomplished?

What discoveries did Galileo make in regard to falling bodies? What did Newton demonstrate later? 973.

Heat.

1. Generation.
2. Temperature.
3. Powers.
    A. Vaporizing.
    B. Expanding.
    C. Melting.
    D. Decomposing.
4. Manifestation.
5. Theory of undulation.
    A. Oscillation.
    B. Ether.
6. Sources.
7. Production.
    A. Friction.
    B. Percussion.
    C. Chemical action.
8. Effects.
    A. Exceptions.
9. Transmission.
10. Radiated heat.
11. Thermometers.
12. Calorimetry.

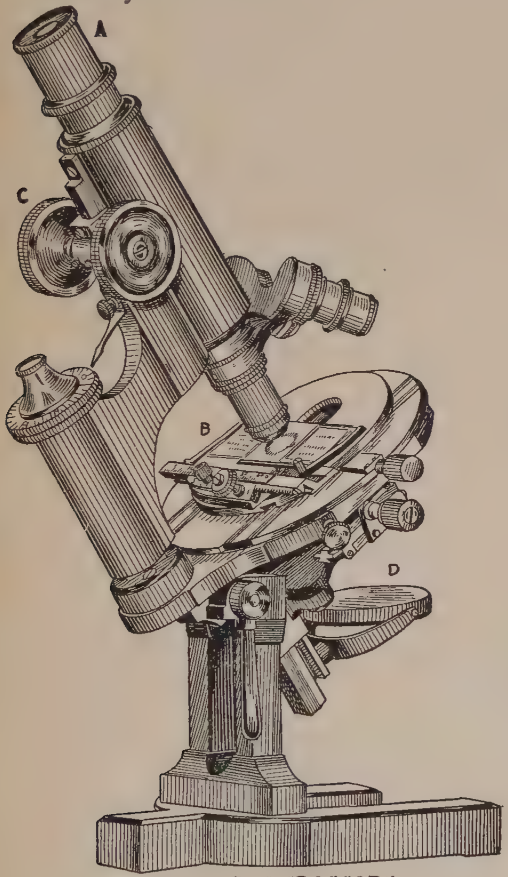
Questions.

What is temperature, and how is it indicated?
What powers does heat possess?
Explain the theory of undulation.
Describe the three principal thermometers.
How is motion produced in heated air?
How is chemical energy transformed into sensible heat?
What is the effect of heat upon all solid, liquid, and gaseous bodies?
What is meant by radiated heat?
Which branch of science treats of the measurement of quantities of heat?
Why is a space left between the rails in a railroad track when they are laid?
What are the sources of heat? Which one furnishes us both heat and light?

Light.

1. Sources.
2. Action—Heating and chemical.
3. Importance.
   - A. Vegetation.
   - B. Animals.
   - C. Sanitation.
   - D. Health.
4. Self-luminous bodies.
5. Theory.
   - A. Undulatory.
     - a. Propagation.
     - b. Transfer.
     - c. Velocity.
   - B. Effects of ether waves.
     - a. Heating.
     - b. Luminous.
     - c. Affinic.
6. Properties.
   - A. Classes.
     - a. Transparent.
     - b. Translucent.
     - c. Opaque.
   - B. Ray—Beam, pencil.
     - a. Converging and diverging.
   - C. Movement—Variation.
7. Reflection.
   - A. When.
   - B. Laws.
   - C. Conditions.
   - D. Reflectors.
8. Refraction.
   - A. On water surface.
   - B. Occurrence.
   - C. Lens—Double complex.
   - D. Rules.
   - E. Optics.
     - a. Definition.
     - b. Treatise.
     - c. Instruments.
9. History.
   - A. Knowledge of ancients.
   - B. Fables.
   - C. Solar spectrum.
   - D. Discoverers and inventors.

Ampère.
Archimedes.
Becquerel.
Bunsen.
Descartes.
Fahrenheit.
Faraday.
Fraunhofer.
Galileo.
Galvani.
Gay-Lussac.
Geissler.
Helmholtz.
Kepler.
Laplace.
Michelson.
Newton.
Röentgen.
Torricelli.
Volta.



MONOCULAR MICROSCOPE.

A, Eye-piece; *B*, Object glass; *C*, Screw to focus tubes; *D*, Mirror to reflect light on object to be examined.

Questions.

Illustrate the importance of light to vegetable growth.

Of what benefit is it to man? From whence does natural light come?

State four kinds of artificial light.

Explain the generally accepted theory of light.

How frequent must the luminous waves occur to produce the sensation of light and to affect the eye?

Name and define three classes of bodies in connection with light.

When is light said to be reflected? Name some good reflectors.

Explain refraction. By whom was the law of refraction discovered?

What does the science of optics embrace?

State the discoveries made by Kepler, Malus, and Descartes.

Describe an X-ray machine and its use.

Sound.

1. Definitions.
2. Production.
3. Induction.
4. Transmission.
    A. Through air.
    B. In solids.
    C. In liquids.
5. Sound waves.
    A. Rate of motion.
    B. How propelled.
    C. Travel best with the wind.
    D. May be reflected, refracted and inflected.
    E. Measurement.
    F. Velocity.
    G. Temperature.
6. Musical sounds.
    A. Impulses.
    B. Rate and pitch.
    C. Tones and unison of tones.
    D. Vibration.
    E. Chords and discords.
    F. Harmonics.
7. Echo.
8. Noise.
9. Speaking trumpet—Megaphone.
10. Ear trumpet.
12. Refraction and reflection.
13. Promoters of acoustics.
    A. Pythagoras.
    B. Aristotle.
    C. Newton.
    D. Laplace.
    E. Helmholtz.
14. Laws of acoustics.
    A. Public buildings.
        a. Gallery of Saint Paul's, London.

Questions.

Give two definitions of sound.

Explain how the impression of sound is carried to the brain.

Why are sounds not heard which are made in a vacuum?

Verify the statement that "sounds may be better heard by solids as conductors than when they are conducted by liquids or gases." 2079.

At what rate does sound travel? How long would it take a sound to travel twenty miles?

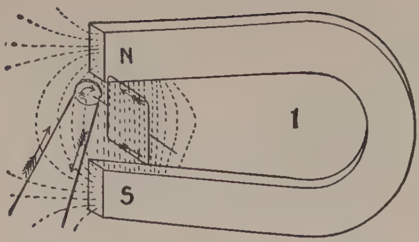
What is a speaking trumpet? Who invented the megaphone? 1750.

To whom does the science of sound particularly owe its progress?

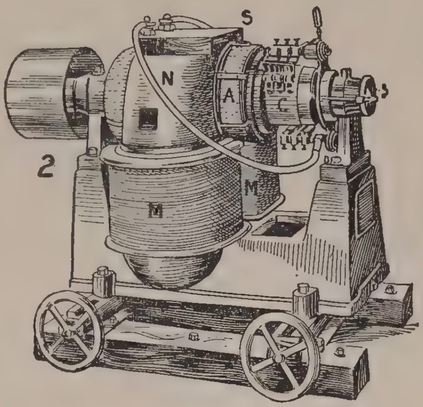
State some principles of acoustics needful in the planning of public buildings.

Where is the whispering gallery? Name a lake in Ireland which is noted for its echo. 864.

Electricity.



- I. Derivation of Name.
- II. Definitions.
  - A. Statical or frictional electricity.
    - a. How produced.
  - B. Dynamical electricity.
    - a. Development.
      - 1. Magnetism.
      - 2. Heat.
      - 3. Chemical action.
    - b. Currents.
  - E. Voltaic or galvanic.
    - a. Experiments.
  - F. Electrics and nonelectrics.
  - G. Conductors and nonconductors.
  - H. Insulator—Resistance.
  - I. Positive and negative electricity.
    - a. Repulsion and attraction.
    - b. Charge—Low potential and zero potential.
- III. Electroscope.
  - A. Use.
  - B. Construction.
  - C. Illustration.
- IV. Electrification.
  - A. Electric current.
    - a. Electric battery.
    - b. Voltaic battery.
    - c. Dynamo.
  - B. Electromotive force.
  - C. Electric source.
- V. Velocity.
  - A. Dependence.
- VI. Electrical Quantities.
  - A. Ohm's Law.
  - B. Units—Volt, ohm, and ampère.
- VII. Uses.
  - Revolution in economic enterprises.
  - A. Heating agency—Homes, offices, railway cars, etc.
  - B. Welding; electrotyping.
  - C. Lighting; medical uses of.
  - D. Propelling power.
  - E. Electric spark—Firing explosives.
  - F. Telephone and telegraph.
  - G. X-ray, telautograph.
  - H. Phototelegraphy.
- VIII. History.
  - A. Writings of Thales.
  - B. William Gilbert's *On the Magnet*.
  - C. First electrical machine.
  - D. Invention of Leyden jar.
  - E. Experiments and discovery of Franklin.
  - F. Animal electricity.
  - G. Volta's discovery.
  - H. Inventors.



THE DYNAMO.

Morse.
Edison.
Ohm.
Bell.
Tesla.
Galvani.
Faraday.
Röentgen.
Marconi.
Siemens.
Ampère.
Guericke.

Questions on Electricity.

From what was the name electricity derived?

Define frictional electricity, electrics, insulator, and electrolysis.

Give a list of nonconductors. Distinguish between positive and negative electricity. 893.

When is a body said to be charged?

What is a volt? How many volts can a person generally bear?

Of what is the ampère the unit? What is Ohm's Law?

State the various uses of electricity in your community.

What is the Leyden jar? By whom was it invented? 1580.

Of what particular value to science was Franklin's discovery regarding electricity?

Give a list of noted discoverers in the science of electricity.

What is electrocution and where is it employed?

Describe an electric motor. By what is electricity measured?

Write an article on *Electric Railways*. 895.

Speak of electricity as an agent in medical science.

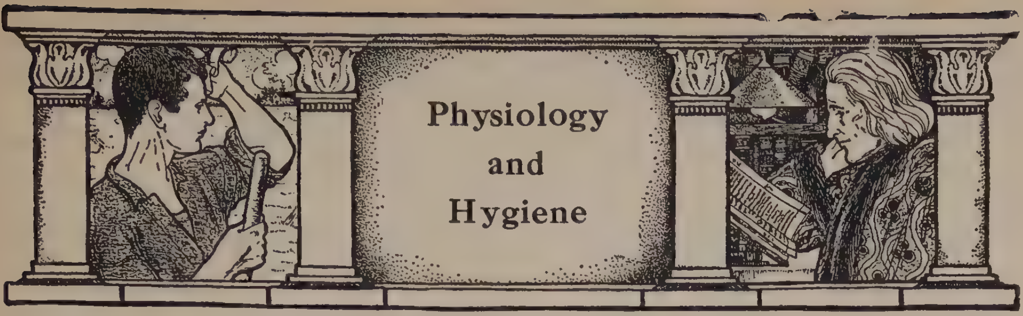
Magnetism.

That power which, like a potent spirit, guides
The sea-wide wanderers over distant tides,
Inspiring confidence where'er they roam,
By indicating still the pathway home;—
Through Nature, quickened by the solar beam,
Invests each atom with a force supreme,
Directs the cavern'd crystal in its birth,
And frames the mightiest mountains of the earth,
Each leaf and flower by its strong law restrains
And binds the monarch Man within its mystic chains.
—*Hunt.*

The Love of Country.

Breathes there the man with soul so dead,
Who never to himself hath said,
This is my own, my native land?
Whose heart hath ne'er within him burned,
As home his footsteps he hath turned
From wandering on a foreign strand?

If such there breathe, go, mark him well!
For him no minstrel raptures swell;
High though his titles, proud his name,
Boundless his wealth as wish can claim,—
Despite those titles, power, and pelf,
The wretch, concentered all in self,
Living, shall forfeit fair renown,
And, doubly dying, shall go down
To the vile dust, from whence he sprung,
Unwept, unhonored, and unsung.
—*Sir Walter Scott.*



Physiology and Hygiene

Nor love, nor honor, wealth, nor power,
Can give the heart a cheerful hour
When health is lost. Be timely wise;
With health all taste of pleasure flies.
—*Gay.*

PHYSIOLOGY treats of the phenomena of living organisms and the processes which characterize life. This subject is explained in the topic entitled PHYSIOLOGY, but innumerable other titles are treated in a helpful manner.

The importance of this branch is well known to the student of experience. It is clear to him that an understanding of this subject is essential in caring for the body in a way that will help to develop and preserve physical powers. At an early stage in civilization, when comparatively little was understood of the laws of growth, life was dependent largely upon chance, but at present the length and pleasure of living may be wisely guided by the trained intellect.

The infant should be cared for by parents who know and practice the right modes of living. The youth needs an early training to understand the laws which govern physical phenomena. Not only that, but he should be trained to obey the laws of nature and to apply wisely the instruction given. This will not only extend the period of life, especially if right living is practiced through succeeding generations, but it will increase the joys and successes that may be attained.

This work of general reference is recommended as a practical guide in this branch of science. As an introduction to the course given in the outlines, students are referred to the following

Correlated Subjects.

Abdomen.
Anatomy.
Animal.
Assimilation.
Bile.
Biology.
Bone.
Brain.
Cells.
Chest.
Chyle.
Circulation.
Connective Tissue.
Death.
Digestion.
Ear.
Embryology.
Evolution.
Eye.
Food.
Foot.
Function.
Gland.
Hair.
Hand.
Heart.
Heredity.
Horn.
Hybrid.
Hygiene.
Intestines.
Kidney.
Ligament.
Liver.
Longevity.
Lungs.
Lymphatic System.
Mastication.
Muscle.
Nails.
Natural Selection.
Nerves.
Nose.
Nutrition.
Proteids.
Protoplasm.
Respiration.
Saliva.
Skeleton.
Skin.
Spontaneous Generation.
Stomach.
Taste.
Teeth.
Tongue.
Voice.

Outline in Physiology.

I. PHYSIOLOGY.
1. Divisions.
A. Human.
B. Animal.
C. Vegetable.
2. Allied studies.
A. Histology.
B. Anatomy.
C. Hygiene.
D. Chemistry.

II. HUMAN BODY.
1. Life and growth.
A. Human physiology.
a. Embryo.
b. Cells.
1. Protoplasm—Globules, molecules, granules, nucleolus.
c. Tissue.
1. Kinds.
Adipose.
Areolar.
Cartilaginous.
Osseous.
Retiform.
White fibrous.
Yellow elastic.
d. Growth.
e. Germ or vital force.
2. Organs and functions.
A. Skeleton—Head, trunk, and limbs.
a. Bones.
1. Purposes.
2. Number.
3. Names.
4. Shape.
5. Size.
6. Composition.
7. Ossification.
8. Periosteum.
9. Motion.
b. Muscles.
1. Number
2. Form.
3. Size.
4. Arrangement.
5. Contraction and expansion.
6. Voluntary and involuntary.
7. Uses.
8. Movements.
9. Covering—Skin.
a. Dermis.
b. Epidermis.
c. Living matter.
1. Constituents.
Water.
Salts.
Fat.
Proteid.
Carbohydrate.
Oxygen.
d. Respiration.
1. Organs.
Larynx.
Glottis.
Vocal cords.
Trachea.
Bronchi.
Lungs.
2. Inspiration.
3. Expiration.
4. Purpose.
5. Aided by skin and kidneys.
e. Nervous system.
1. Brain.
a. Center of system.
b. Parts.
Cerebrum.
Cerebellum.
Medulla oblongata.
c. Composition—Fibers, tissues, and matter.
d. Convolutions.
e. Weight.

- 2. Spinal cord.
  - a. Location.
  - b. Protection.
  - c. Structure.
  - d. Branches.
- 3. Nerves.
  - a. Structure—Cells, fibers, and nerve end organs.
  - b. Classes.
    - Sensory.
    - Motory.
  - c. Kinds.
    - 1. Spinal—31 pairs.
      - Posterior and anterior.
    - 2. Cranial—12 pairs.
      - Olfactory.
      - Optic.
      - Motores oculi (3).
      - Trifacial.
      - Facial.
      - Auditory.
      - Glossopharyngeal.
      - Pneumogastric.
      - Accessory.
      - Hypoglossal.
    - 3. Sympathetic.
  - d. Reflex action.
  - e. Development.
  - f. Senses—Smell, touch, taste, sight, hearing.

- III. Special Topics.
  - 1. Circulatory system.
    - A. Organs.
      - a. HEART.
        - 1. Size and shape.
        - 2. Muscular.
        - 3. Pericardium.
        - 4. Chambers.
          - a. Auricles.
          - b. Ventricles.
        - 5. Valves.
          - a. Bicuspid or mitral.
          - b. Tricuspid.
          - c. Semilunar.
        - 6. Movements.
          - a. Systole or contraction.
          - b. Diastole or expansion.
      - b. ARTERIES.
        - 1. Origin of name.
        - 2. Lead from left ventricle into circulation.
        - 3. Carry pure blood.
        - 4. Pulmonary artery carries blood to the lungs to be oxygenated.
        - 5. Walls; Coats.
        - 6. Names—Aorta, Capillaries, etc.
      - c. VEINS.
        - 1. Convey blood to the heart; pulmonary vein carries oxygenated blood from the lungs to the left auricle.
        - 2. Carry venous or bad blood.
        - 3. Walls—Compare with arteries.
        - 4. Near the surface.
        - 5. Names—Vena cava ascending, vena cava descending, pulmonary, portal, jugular, etc.
      - d. Capillaries.

- B. BLOOD.
    - a. Composition.
        - 1. Plasma.
        - 2. Corpuscles.
    - b. Coagulation.
    - c. Transfusion.
- C. Circulation.
    - a. Systematic.
        - 1. Collected in left ventricle.
        - 2. Propelled through aorta and its arterial branches and capillaries to all parts of body.
        - 3. Returns through veins to right auricle.
    - b. Pulmonic.
        - 1. Passes from right ventricle into pulmonary artery and its branches to lungs for purification.
        - 2. Collects and returns through pulmonary veins to left auricle; thence into left ventricle and again enters systematic system.

2. DIGESTION.
    - A. Process of what.
    - B. Begins in the mouth.
        - a. Food chewed and ground by the teeth.
        - b. Solids broken into bits, moistened with saliva, mixed well, formed into bolus, and swallowed.
        - c. Passes through aesophagus into stomach.
        - d. Churning process mixes ingredients.
        - e. Subjected to action of pepsin from gastric juice.
        - f. Starches and fats loosened; protoplasm dissolved; proteids converted into peptones.
        - g. Time required is from 3 to 4 hours.
        - h. This chyme then enters intestines through pylorus.
        - i. Acted upon by bile, pancreatic juice, intestinal secretions.
        - j. Starches converted into sugar; proteids into peptones; fats into emulsion.
        - k. This chyle is then absorbed by portal blood vessels and lacteals.
        - l. Acid formation and further absorption extends to larger intestines.
3. EAR.
    - A. Parts.
        - a. External or concha.
            - 1. Auditory canal—Size.
            - 2. Auricle or pinna—Collects sound waves.
            - 3. Muscles.
            - 4. Wax.
        - b. Middle or tympanum.
            - 1. Size.
            - 2. Lining.
            - 3. Cavity—Mastoid process.
            - 4. Eustachian tube.
            - 5. Bones—Ossicles.
                - a. Malleus or hammer.
                - b. Incus or anvil.
                - c. Stapes or stirrup.
        - c. Internal or labyrinth.
            - 1. Vestibule.
            - 2. Cochlea.
            - 3. Semicircular canals.
            - 4. Liquid.
            - 5. Cells—Nerve ends.
            - 6. Ear sands.

- B. How we hear.
    - a. Production of sound waves in liquid.
    - b. Speed.
    - c. Vibrations—Number.
    - d. Incentives to nerve action.
    - e. Hindrances.
    - f. Impressions and illusions.
- 4. EYE.
    - A. Description.
        - a. Globe or eyeball.
        - b. Orbit.
        - c. Size and shape.
        - d. Coats.
            - 1. Sclerotic.
            - 2. Cornea.
            - 3. Choroid.
            - 4. Retina.
            - 5. Iris.
        - e. Liquids.
            - 1. Aqueous humor.
            - 2. Vitreous humor.
        - f. Pupil.
        - g. Lens.
        - h. Ciliary process.
        - i. Color.
        - j. Muscles.
        - k. Protection.
            - 1. Eyebrows.
            - 2. Eyelids.
            - 3. Eyelashes.
        - l. Lachrymal glands, canals, lakes, ducts.
        - m. Tears.
    - B. Phenomenon of sight.
        - a. Dependent upon ether,
        - b. Waves of light.
        - c. Nerve of sight—Optic.
        - d. Blind spot.
        - e. Focus.
        - f. Accommodation.
        - g. Illusions.
        - h. Color-blindness.
        - i. Farsightedness.
        - j. Nearsightedness.
        - k. Care of the eyes.
- 5. DISEASE.
    - A. Classes.
        - a. Organic.
        - b. Functional.
    - B. Causes.
        - a. Diathetic.
        - b. Enthetic.

Diseases Common to Man.

Ague.
Anaemia.
Apoplexy.
Appendicitis.
Asphyxia.
Bright's Disease.
Bronchitis.
Cancer.
Catarrh.
Cholera.
Consumption.
Croup.
Diphtheria.
Epilepsy.
Erysipelas.
Fever.
Glanders.
Gout.
Headache.
Hydrophobia.
Hysteria.
Influenza.
Insanity.
Itch.
Jaundice.
Leprosy.
Lumbago.
Malaria.
Measles.
Mumps.
Neuralgia.
Neurosis.
Paralysis.
Pleurisy.
Pneumonia.
Poison.
Quinsy.
Rheumatism.
Scrofula.
Smallpox.
Sprain.
Saint Vitus' Dance.
Sunstroke.
Tuberculosis.
Tumor.
Typhoid Fever.
Typhus Fever.
Whooping Cough

Questions on Physiology.

Define physiology and name its chief divisions. 2206.

Of what do anatomy and hygiene treat?

What are tissues? Name the principal kinds.

Of what is the skeleton composed? Give the number and names of the bones.

Of what uses are muscles? Explain contraction and expansion. 1876.

Distinguish between voluntary and involuntary muscles.

What are the organs of respiration? Write 12 lines on this subject.

Name the divisions of the alimentary canal. Describe the process of digestion.

Name the fluids which aid digestion and tell by what each is secreted.

Illustrate the heart and its divisions by a drawing. 1275.

Name the two systems of circulation and describe them.

Tell about the color, density, taste, composition, and use of the blood.

Define membrane, albumen, pulse, lacteals, dura mater, and coagulation.

Tell of the growth and use of the hair and nails.

Of what is the nervous system composed? Describe the brain.

Name the three divisions of the ear. Explain how we hear. 853.

What is meant by the phenomenon of sight? How may poor sight be aided?

How many teeth should an adult have? Give names of the different teeth.

The Body.

From the top of my head to my tiny toes,
I am built of bones, as every one knows.
These are the framework so strong within;
Outside they are covered with flesh and skin.

The parts of my body are only three,
My head, my trunk and my limbs, as you see.
My head has a back, two sides and a crown,
All covered with hair, yellow, black, red or brown.

And just in front, in the foremost place,
You plainly can see my neat little face.
My face has a forehead, nose, mouth and chin;
Two cheeks where the dimples slip out and in.

Two eyes you see when you are near,
Two ears like sea-shells to help me to hear.
My neck and shoulders so broad and strong,
Arm, forearm, wrist, hand and fingers long.

My trunk and my thighs, legs, and ankles and knees,
On two feet I stand, or run, if I please,
My joints are to bend when I run, jump or walk;
I've a little red tongue to help me to talk.

These make up my body, and now I will tell
What we all must do to keep strong and well.

To be neat and clean we must take great care,
Have plenty of sunshine and breathe the fresh air;
Eat nourishing food to make good blood, and then
We all shall become strong women and men.

Games and Sports

GAMES and sports are considered essential in the development of physical skill, bodily strength, and mental activity. They aid in securing the healthful development of the body, making it fit as a dwelling for a vigorous mind. Froebel said, "Play is not trivial; it is highly serious and with deep meaning."

The aims in promoting healthful, yet playful, exercise are numerous. They tend to overcome bodily defects, such as narrowness of the chest and stooping of the shoulders, and furnish the recreation and relaxation which should follow sustained study. Above all, games and sports are both hygienic and educative in that they invigorate the circulation, enlarge respiration, and induce harmony of action between the body and the mind.

This work of general reference is helpful in the study of amusements and plays for all classes. The student is referred to the special articles on the following list of

Plays and Pastimes.

Angling.
Archery.
Athletics.
Backgammon.
Bagatelle.
Baseball.
Basketball.
Billiards.
Boxing.
Bullfight.
Canoe.
Cards.
Checkers.
Chess.
Cribbage.
Cricket.
Croquet.
Curling.
Delsarte.
Dice.
Dominoes.
Falconry.
Fencing.
Football.
Golf.
Gymnasium.
Lacrosse.
Lawn Tennis.
Marble.
Ping Pong.
Polo.
Pool.
Quoits.
Race.
Riding.
Roulette.
Rowing.
Skates.
Swimming.
Tennis.
Toboggan.
Trapping.
Trolling.
Whist.
Wrestling.
Yachting.

Outlines of Games and Sports.

I. DIVISIONS.
- 1. Recreative.
- 2. Amateur.
- 3. Professional.
  - A. Classes.
    - a. Grecian.
    - b. Gladiatorial.
    - c. Modern.
      - 1. Competitive. 2. Contestant.

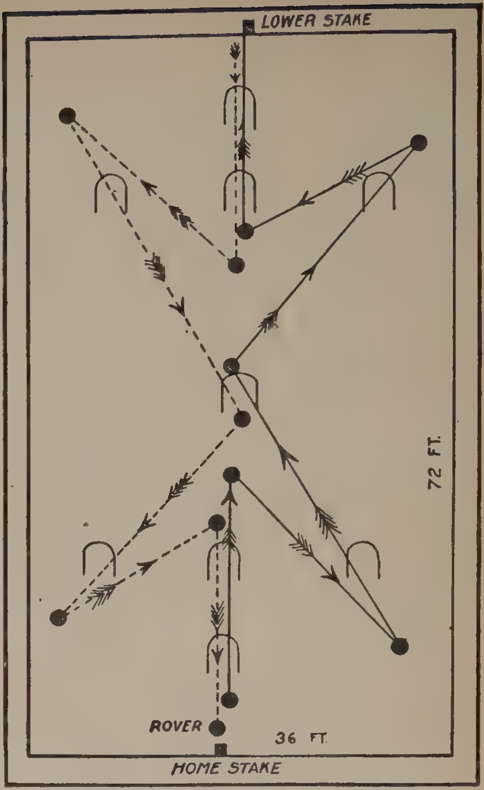
II. KINDS.
- 1. Indoor.
  - Bowling.
  - Billiards.
  - Cards.
  - Chess.
  - Checkers.
  - Dominoes.
  - Legerdemain.
  - Dice.
- 2. Outdoor.
  - Ball.
  - Cricket.
  - Archery.
  - Polo.
  - Croquet.
  - Golf.
  - Tennis.
  - Lacrosse.

3. Sports.
    Hunting.
    Shooting.
    Racing.
    Boating.
    Boxing.
    Wrestling.
    Cycling.
    Fishing.
4. Field.
    Hurdling.
    Pole vaulting.
    Broad jumping.
    High jumping.
    Hammer, or weight throwing.
5. Track.
    Sprinting.

III. TRAINING.
    1. Athletic.
    2. Calisthenic.
    3. Physical culture.
    4. Dancing.
    5. Gymnastic.
    6. Boxing.
    7. Wrestling, etc.

IV. ASSOCIATION.
    1. Canadian Amateur Athletic Union.
        A. Games.
        B. Time and place.
        C. Records.
        D. Championship.
    2. Intercollegiate Athletic Association of United States.
        A. Games.
        B. When and where.
        C. Records.
    3. New England Intercollegiate Association.
    4. Western Intercollegiate Games.
    5. National Amateur Athletic Union.

V. VALUE.
    1. Develops physical perfection and skill.



CROQUET GROUNDS.

    2. Promotes speed, agility, endurance, etc.
    3. Quickens thought.
    4. Serves as entertainment, amusement, and recreation.
    5. Cultivates temperance, self-denial, etc.

I. BASKETBALL.
    1. Indoor game.
    2. Played in large oblong room.
    3. Goal—18-in. net basket at each end of room suspended 10 ft. above floor.
    4. Ball—Leather cased inflated rubber bladder, 32 in. around.
    5. Teams—2, of 5 players each.
        A. Guards—Right and left.
        B. Center.
        C. Forwards—Right and left.
        D. Referee.
        E. Order of game.
    6. Invented by James Naismith, in 1891.
    7. Popularity.
        A. Amateur Organizations.
        B. High Schools.
        C. Colleges and Universities.
        D. Professional.
    8. Season—Winter.

II. FOOTBALL.

1. Popularity.
    A. Ancient Greece and Rome.
    B. England—12th century.
    C. America.
    D. Australia, etc.
2. Participants.
    A. Higher grade pupils.
    B. Students of colleges and universities.
3. Description.
    A. Field.
    B. Teams.
    C. Players.
    D. Officials.
    E. Position.
    F. Goal.
    G. Rules.
        a. Association.
        b. Rugby.
    H. Restrictions.
    I. Movements.
    J. Scoring.
4. Associations.
    A. Rugby.
    B. Australian.
    C. American Intercollegiate.
    D. Universities.
        a. Harvard.
        b. Princeton.
        c. Yale.
        d. University of Pennsylvania, etc.
    E. Others.
        a. Western.
        b. Canadian.
        c. Indian, etc.

III. BASEBALL.

1. National game.
2. Originally town ball.
3. Institution of professional organization in 1871.
4. Leagues.
    A. National League.
    B. American League.
    C. American Association, etc.
5. Development of professional skill.
6. Adoption of standard rules.
7. Public exhibits.
8. Tours.
9. Games.
    A. Season.
    B. Ball—Size and weight.
    C. Bat—Material and length.
    D. Field—Diamond.
    E. Men—Umpire, catcher, batsman, pitcher, etc.
    F. Proceedings.
    G. Innings.
    H. Rules.

Questions.

Name the national games of England and United States.

Describe a game of baseball. 240.

Among what class of people is football played most extensively? Name some of the benefits derived from this game.

What sports can you name in connection with water?

What was the moral influence of the athletics in the early Grecian and Roman days?

Name some games which give intellectual training.

What is the general attitude of schools toward athletics?

State some reasons for increasing popularity of outdoor recreation.

Define umpire, coach, score, goal, racket, and alley.

Name a school of England famous for its athletic enthusiasm.

Who invented the game of basketball? By whom is it played most extensively? 243.

Give a list of games that may be played with cards.

When and why were the gladiatorial games forbidden? **1147.**

The Philosophy of Sport.

Bear lightly on their foreheads, Time!
  Strew roses on their way;
The young in heart, however old,
  That prize the present day,
And, wiser than the pompous proud,
  Are wise enough to play.

I love to see a man forget
  His blood is growing cold,
And leap, or swim, or gather flowers,
  Oblivious of his gold,
And mix with children in their sport,
  Nor think that he is old.

I love to see the man of care
  Take pleasure in a toy,
I love to see him row or ride,
  And tread the grass with joy,
Or hunt the flying cricket-ball
  As lusty as a boy.

All sorts that spare the humblest pain,
  That neither maim nor kill—
That leads us to the quiet field,
  Or to the wholesome hill,
Are duties which the pure of heart
  Religiously fulfill.

Though some may laugh the full-grown men
  May frolic in the wood,
Like children let adrift from school,—
  Not mine that scornful mood;—
I honor human happiness,
  And deem it gratitude.

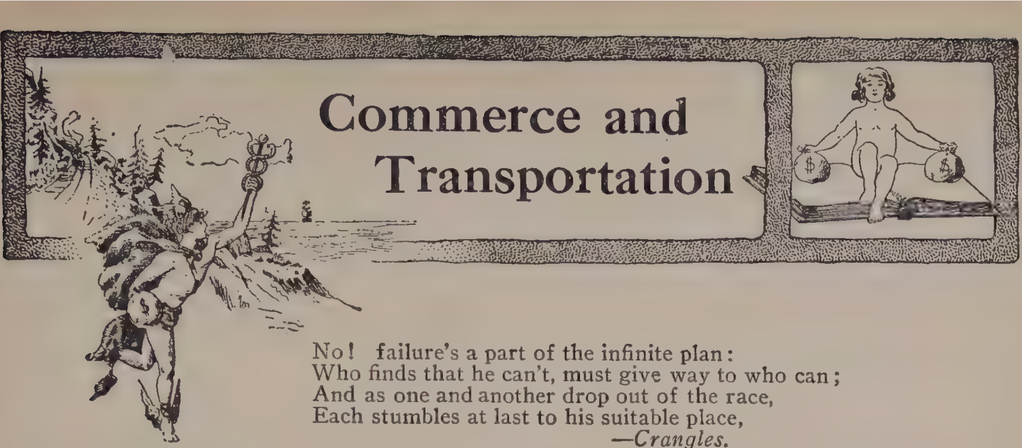
And, though perchance the Cricketer,
  Or Chinaman that flies
His Dragon-kite with boys and girls,
  May seem to some unwise,
I see no folly in their play,
  But sense that underlies.

The road of life is hard enough—
  Bestrewn with snag and thorn;
I would not mock the simplest joy
  That made it less forlorn;
But fill its evening path with flowers
  As fresh as those of morn.

'Tis something, when the moon has passed
  To brave the touch of Time,
And say, "Good friend, thou harm'st me not,
  My soul is in its prime:
Thou canst not chill my warmth of heart:—
  I carol while I climb."

Give us but health, and peace of mind,
  Whate'er our clime or clan,
We'll take delight in simple things,
  Nor deem that sports unman;
And let the proud, who fly no kites,
  Despise us if they can!

—*Chas. Mackay.*



Commerce and Transportation

No! failure's a part of the infinite plan:
Who finds that he can't, must give way to who can;
And as one and another drop out of the race,
Each stumbles at last to his suitable place,
—*Crangles.*

COMMERCE is the exchange of goods or property between nations or the subdivisions of nations, such as states and provinces. Transportation consists of the industry of carrying goods and persons from one place to another. Collectively, commerce and transportation constitute important factors in the trade between states and nations.

This work of general reference contains the information that is needed by students of commerce and transportation. It furnishes the material which is essential in the study of these branches of learning. For research work the student is referred to the following

Correlated Subjects.

Banking.
Boat.
Bounty.
Breakwater.
Canal.
Caravan.
Carrier.
Commerce.
Commercial Law.
Customs Duty.
Dam.
Dock.
Duties.
Electric Railway.
Erie Canal.
Exchange.
Excise.
Hanseatic League.
Harbor.
International Law.
Interstate Commerce.
Jetty.
Kaiser Wilhelm Canal.
Levee.
Money.
Navigation.
Navy.
Panama Canal.
Protection.
Railroads.
Road.
Sault Sainte Marie Canal.
Ship.
Steamboat.
Suez Canal.
Tariff.
Tramway.
Transportation.
Weather Bureau.
Welland Canal.

I. TRADE.

1. Origin and growth of trade.
   - a. Earliest form of trade—What called.
   - b. Conditions that gave rise to trade relations.
   - c. Influences that have a tendency to develop trade, i. e., social, economic, industrial, climatic, etc.
2. Object and purpose of trade.
   - a. To the individual.
   - b. To society.
   - c. To mankind in general.
3. Results of trade.
   - a. Material results.
   - b. Social and economic results.
   - c. Intellectual results.
4. Trade Centers.
   - a. Location—The determining factors.
   - b. Growth—Upon what it depends.
   - c. Earliest trade centers—Where found and why.
   - d. Influence of trade centers upon the growth of towns and cities.

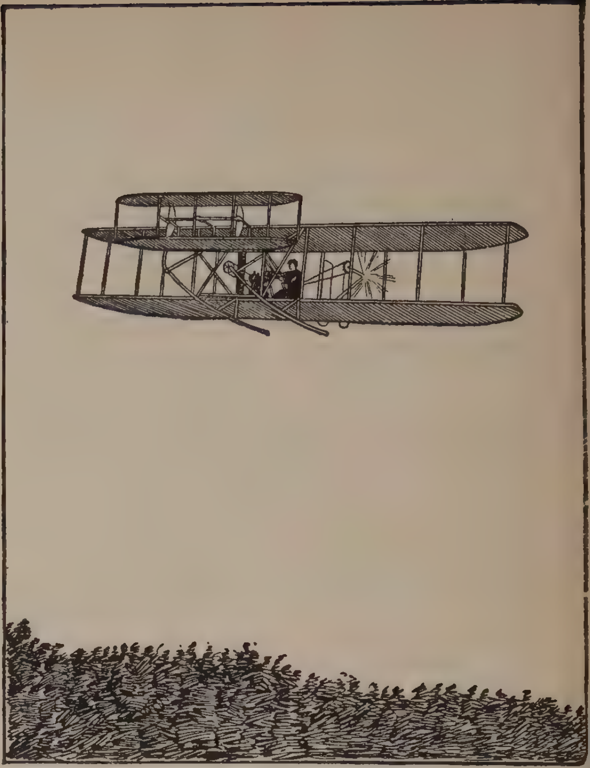
e. The world's greatest trade centers—Location and why so located.

5. New York as a trade center.
    a. Why so located.
    b. Connection with other great centers of commerce.
    c. Character of the trade—Industries and business that developed as a result.
    d. Chief factors in its growth.
    e. Manufactures and markets.
    f. Export and import trade.
    g. Commercial importance.

6. Important trade centers of the United States.
    a. Location with reasons for same.
    b. Growth—Chief factors of.
    c. Extent of territory reached.
    d. Manufactures and markets.
    e. Population and industries.
    f. Export and import trade.
    g. Commercial importance.

7. Trade centers of Canada and North America treated in a similar manner.

8. Trade centers of South America, Europe, Asia, Africa, Australia, and the isles of the Sea treated with special reference to location, industries and manufactures, population, and commercial importance.



EARLY FLYING MACHINE.

> What wonders man has wrought
> The recent centuries best to us portray;
> In every field his studious mind has sought
> And found things beautiful in wide array.
> No more can Jupiter impale and blight,
> Nor tyranny suppress the growth of mind;
> To think is now a universal right,
> Safe and secure in all mankind.
>
> —*B. P. Holst.*

Suggestions.

1. Study the surface conditions of the countries where great trade centers are found. In a similar manner study climate, soil, vegetation, animals, and occupations of the people.
2. Locate places with special reference to New York and the great trade centers of the United States and North America.
3. Locate countries with special reference to the United States and North America.
4. Study the maps. Have the students make sketch and relief maps of their own.
5. Let the object be to study conditions, obtain facts, and fix places.

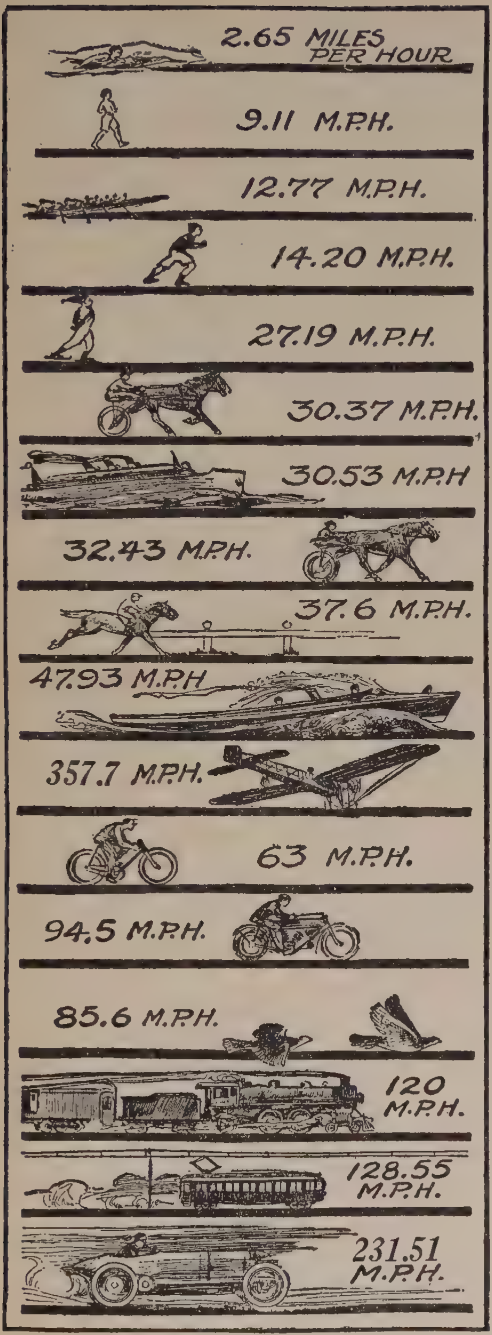
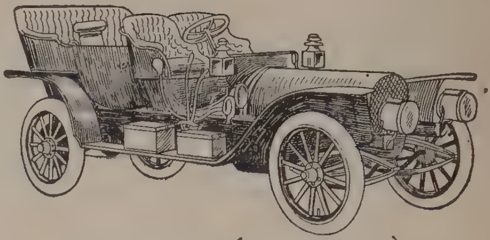

2.65 MILES PER HOUR
9.11 M.P.H.
12.77 M.P.H.
14.20 M.P.H.
27.19 M.P.H.
30.37 M.P.H.
30.53 M.P.H
32.43 M.P.H.
37.6 M.P.H.
47.93 M.P.H
357.7 M.P.H.
63 M.P.H.
94.5 M.P.H.
85.6 M.P.H.
120 M.P.H.
128.55 M.P.H.
231.51 M.P.H.

Diagram to show the general maximum speed attained by various means of transportation. The flying machine has the highest record.

II. TRANSPORTATION.

1. Origin and growth of transportation.
   - a. Connection with the earliest forms of trade.
   - b. Earliest ways and means of transportation.
   - c. Inventions and discoveries that have influenced the growth of transportation.
   - d. Conditions that make transportation necessary.
2. Means of transportation.
   - a. Man—The earliest factor.
   - b. The ox, pack horse, and other animals used.
   - c. The cart, wagon, stage coach, steam cars, cable and electric cars, automobiles, and flying machines.
   - d. The raft, rowboat, sailboat, steamboat.
3. Ways of transportation.
   - a. Water transportation.
     1. Rivers.
        - a. Where found.
        - b. Source, direction, size and length, mouth, current.
        - c. Character and extent of country drained.
        - d. River systems.
     2. Conditions favorable to transportation.
        - a. Swift current.
        - b. Direct course.
        - c. Smooth, clean bed.
        - d. Good landings.
     3. Improvements necessary.
        - a. Removal of lodged timbers, boulders, and sand bars.
        - b. The building of dikes and levees.
        - c. Prevention of change in current or river bed.
        - d. The construction of wharves.
     4. The Great Navigable Rivers.
        - a. United States and North America.
        - b. South America, Europe, Asia, Africa, and Australia.

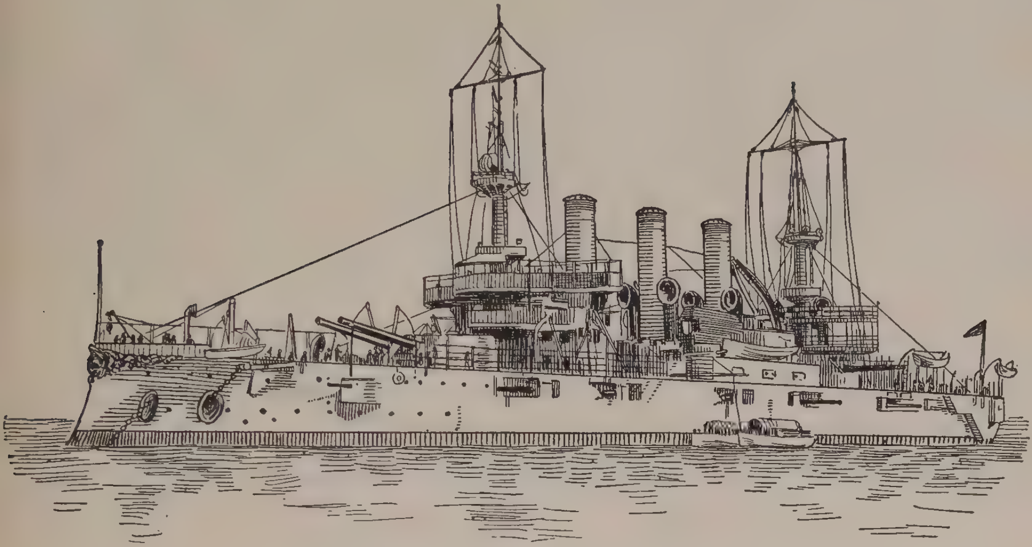
  - c. Nature and extent of the country drained.
  - d. How far navigable.
  - e. Points of trade and trade centers connected.
  - f. Climate, surface, soil, and productions of country drained.
  - g. Character and amount of goods transported — Cost of transportation.
- 5. Lakes.
  - a. Where found.
  - b. Size and extent.
  - c. Inlets and outlets.
  - d. Nature and extent of territory reached — Climate, surface, soil, and productions of same.
  - e. The world's greatest commercial lakes—Trade centers reached by and through them.
  - f. Quality and quantity of goods transported.
- 6. Canals.
  - a. Origin and purpose of the canal.
  - b. Its connection with lake and river transportation.
  - c. How constructed—Depth of water, width of canal, and points connected.
  - d. Conduct of canal transportation — Extent and cost.
  - e. Growth and improvement in canal transportation.
- 7. Canals in Canada and the United States.
  - a. Where found.
  - b. When and how built.
  - c. Cost of construction.
  - d. Points connected.
  - e. How operated.
  - f. Extent and cost of transportation.
- 8. Canals in other countries treated in a similar manner.
- 9. The world's great canals.
  - a. Object and purpose.
  - b. Where found, when and how built.
  - c. Cost of construction and how operated.
  - d. Special aid to the world's commerce.
  - e. Points connected — Extent and cost of transportation.
  - f. Countries especially interested.



TOURING CAR (AUTOMOBILE), EARLY TYPE.

- 10. Oceans, seas, bays, etc.
  - a. Location and extent.
  - b. Countries that border on them.
  - c. Countries separated by them.
  - d. The world's great seaports—Where and why so located.
  - e. The great oceans of commerce.
- 11. Conditions favorable to navigation.
  - a. Smooth surface.
  - b. Medium temperature.
  - c. Great depth of ocean currents.
  - d. Freedom from storms.
  - e. Favorable winds.
  - f. Good vessels.
  - g. Good harbors and wharves.
- 12. The great ocean routes.
  - a. Points of beginning.
  - b. Intermediate points.
  - c. Terminal points.
  - d. Goods shipped.
  - e. Time and cost of transportation.
  - f. A careful study of (a), (b), and (c), as to location, population, industries and manufactures, exports and imports.

13. Countries that trade with the United States.
    a. Products produced and exchanged.
    b. Products bought and sold.
    c. Ocean routes most commonly used in transportation.
    d. Steamship lines carrying the trade.
    e. Seaports reached—Location, size, and importance.
14. Countries that trade with each other (Treated according to outline 13).



WAR VESSEL, PRE-WORLD WAR TYPE.

SUGGESTIONS.

1. Trace rivers from source to mouth, describing surface and climatic conditions of countries drained, locating trade centers, naming products obtained at each, and giving the extent to which each is navigable.
2. Locate and trace rivers on maps in the books and on outline and relief maps drawn by the pupils.
3. Locate and trace canals on maps, show points connected, and emphasize use and importance of canal transportation.
4. Locate the oceans, giving latitude and longitude. Give climate and productions of countries touched. Study the character of the coast lines of countries and effect of same on transportation.
5. Make constant use of maps in tracing ocean routes and in locating seaports reached.

LAND TRANSPORTATION.

1. The old time trails.
    a. Character of the surface of countries through which such trails passed.
    b. Difficulties and dangers to be overcome in making transits.
    c. Time required and expense incurred.
    d. Character of the products transported.
    e. Climate, soil, and productions of the countries in which trails occur.
    f. Name, locate, and trace out the most important trails.
    g. Points connected.

2. Highways.
    a. Early wagon roads or trails.
    b. Nature of the country traversed.
    c. Difference between the wagon trail and the old time trail.
    d. Comparative value of the two means of transportation in points of time, expense, and quality and quantity of goods transported.
    e. Points and trade centers connected.
    f. Climate, soil, and productions of the country.
    g. Improvements and the wagon roads of to-day.
3. Tramroads.
    a. Origin and purpose.
    b. Where found.
    c. How built—Cost of construction.
    d. Special use.
    e. Countries in which the tramroads are found.
    f. Points connected by them.
    g. Advantages over the old time wagon road in points of time made and amount of goods transported.
4. Railroads.
    a. Origin of the railroad.
    b. Points of similarity and difference between the railroad and the tramroad.
    c. Manner and cost of construction.
    d. Growth and improvement.
    e. Products transported, time saved, and effect on increased production.
    f. Countries of the world in which railroads are chiefly found.
    g. How railroads aid in the development of a country.
5. Trunk line railroads of the United States and North America.
    a. Where found.
    b. Points of beginning.
    c. Intermediate points.
    d. Terminal points.
    e. Points connected with main line by branch road.
    f. Careful study of (b), (c), and (d), as to location, population, manufactures and industries, export and import trade.
    g. Motor Highways.
    h. Warehouses and depots—Necessity for.
6. Trunk line railroads of other countries; study according to outline (5).
7. Chicago as a railroad center.
    a. Trunk lines.
    b. Branch roads.
    c. Extent of country traversed and points connected.
    d. Character and amount of trade controlled.
    e. Early connection of Chicago with the West and Southwest. How and over what routes (trails) were goods transported.
    f. Connection with the East and Canada—Formerly and at present.
    g. Warehouses and depots—Purpose and use of same.
    h. Daily trains entering and leaving Chicago.

SUGGESTIONS.

1. Use maps freely in locating and tracing railroads. Make a special study of trade centers connected, as to location, size, and products obtained.
2. Locate and trace out the important trails, making a careful study of the conditions of the country, locating the points connected, and giving quality and quantity of goods transported.
3. Make a comparative study of the countries where railroads are maintained, and those without railroad facilities, as to trade, intelligence, and progress.
4. Let the aim be to show the growth and development of transportation, and how this has contributed to the progress and well-being of man.

Questions on Commerce and Transportation.

Define commerce and explain the two leading classes. 640.

How do the United States rank among nations in foreign commerce? Name our leading exports.

Name some helpful agencies for a thriving domestic commerce.

How was commerce carried on in the Middle Ages?

Which countries were great commercial nations of the ancient world? What reference is made in Isaiah to this?

Of what benefits are chambers of commerce?

When was the Department of Commerce and Labor created? Who is now secretary of this department?

What is commercial law, and what does it include?

Compare transportation by modern facilities with those of ancient times.

In which countries are caravans used most extensively? What are their chief articles of trade?

When did the rapid development of our domestic commerce begin?

What is the Interstate Commerce Act, and what benefits are derived from it? 1398.

Define tariff. Briefly discuss the tariff of Canada.

What is revenue? Name some important tariff bills.

Name and locate five great canals of commercial value.

Of what practical benefit will the Panama Canal be to the world?

How do climate, soil, and rainfall tend to affect the commerce of a community?

Tell of the leading railroad systems of the United States. Name ten important trade centers of the country.

What are trunk lines, depots, elevators, and warehouses?

Mention the important factors which cause the development of great cities.

Three Fishers Went Sailing.

Three fishers went sailing out into the West,
  Out into the West as the sun went down;
Each thought on the woman who loved him best,
  And the children stood watching them out of the town:
For men must work, and women must weep,
And there's little to earn, and many to keep,
Though the harbor-bar be moaning.

Three wives sat up in the light-house tower,
  And they trimmed the lamps as the sun went down;
They looked at the squall, and they looked at the shower,
  And the night-rack came rolling up ragged and brown;
But men must work, and women must weep,
Though storms be sudden, and waters deep,
And the harbor-bar be moaning.

Three corpses lie out in the shining sands,
  In the morning gleam, as the tide went down,
And the women were weeping and wringing their hands,
  For those who will never come home to the town.
For men must work, and women must weep,
And the sooner it's over, the sooner to sleep,
And good-bye to the bar and its moaning.

—*Kingsley.*

Language and Grammar

Languages are to be learned only by reading and talking, and not by scraps of authors got by heart.—*Locke.*

I. Language.

THE aim of language study is twofold: First, to teach the child to think; second, to teach him how to express his thoughts.

Throughout the first three grades it will be found that more attention must be paid to teaching the child to think than to his expression. For this reason the plan of work provides for a preponderance of free expression over expression with a view to correctness of form. For the same reason, by far the greater part of the time in the schoolroom is to be spent upon oral rather than upon written work, since free thought is hampered by the necessity of spelling and forming the letters involved in writing.

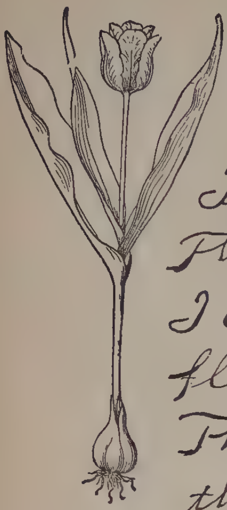
In first-year language, self-consciousness in the child must be avoided by every possible means. When he is telling a story, spontaneity must not be destroyed by interruption. Neither must correction be made after the story has been told. No greater fault can creep into a first-grade teacher's work than the inability to understand the sensitiveness of the child mind. Allow the child to speak freely and naturally, and to feel that he is making his story "interesting" to his hearers.

The delicacy of touch with which the successful teacher handles the story-telling period is shown in the following report of such a recitation: First, the teacher tells the story; second, she asks the pupils about the way they can tell it to make it interesting. She does not burden them with any outline of procedure, but endeavors to instill into their minds the idea that to make a story interesting they must not tell the details in a disjointed manner. This is the inculcation of the principle of unity in expressing thought, and prepares the child for the paragraph idea in his written work taken up later.

The teacher's story has been one of a child enjoying a ride into the country in a donkey cart. She supposes the case of the child telling his story, apparently with all its details rounded out and complete, when he suddenly remembers that on the drive out the donkey had upset the cart! She asks the class why this would not be a good way to tell the story, and the child, being properly led, readily learns to recognize the fact that it is not interesting to tell of this one incident of the donkey after everything else has been told about it. In other words, the interest has been destroyed by the child's failure to tell one of the most important details at the proper time.

By means of this supposed case the teacher prepares the way for the reproduction of the story next day, when, almost invariably, the child will endeavor to make his version "interesting."

Though it is not wise to speak to the pupil of his spoken English in the story-telling period, an important part of the first-grade teacher's work is to teach the use of correct forms. How, then, is it to be done? By supplying single sen-



The Tulip.

The tulip is a beautiful flower. It has a bulb and many roots The stem and the leaves are green. I can see the bulb, the stem and the flower. Can you see them? The flowers have many colors, but this one is red.

First Grade.

My Spring Vacation.

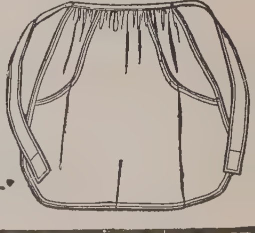
My vacation began the last of March and ended Sunday, April ninth.

Monday I helped mamma wash the clothes and she gave me a nice red apple. It was sweet and juicy.

Wednesday morning I didn't want to get up, because I was so sleepy. After breakfast I played with kittie and later took my little sister out in her go-cart. We went out for a ride nearly every day last week.

Last Sunday I went with mamma to the cemetery. It was a fine day.

I am learning how to sew. Here is an apron mamma helped me make.



WRITTEN WORK—FIRST AND SECOND GRADES.

tence exercises in which this correction may be made, the teacher may hope to see the habits of correct speech formed. The child's natural use of words in story-telling, therefore, instead of furnishing a target for criticism, should be looked upon rather as an index of the progress he has made in acquiring correct habits through other means.

Exercises which are to train the child in the use of correct English should, as said before, be of single sentence length only. Having given his sentence, he is ready to dwell upon it if attention is called to any error he may have made.

The best kind of exercise is in the form of a game. For instance, in teaching the correct use of the parts of the verb *see,* the teacher may devise such a game as the following: Placing an apple on the table, she says, "I see an apple," but quickly removing it, puts the question, "What did you see, Bernice?" If Bernice replies, "I seen an apple," the teacher explains that "seen" is one of those words that are afraid to be out alone, and so needs a helper along. Bernice then corrects her statement to "I have seen an apple," and the teacher asks her to say it in still another way. This brings out, "I saw an apple." Such an exercise may continue around a class with different objects shown.

Another game may be played by having a pupil seat himself in a chair and then leave it. The class turns toward him and asks of the next child, "Was it he?" to which the reply is made, "It was he." Two pupils may then take chairs and the class asks, "Was it they?" receiving the reply, "It was they." One pupil may now get up and ask, "Was it I?" "No," replies the class, "it was he," or "it was they," as the case may be.

The ingenuity of the teacher readily supplies similar games for the correction of various errors in speech. Bringing the play language into the schoolroom by means of natural conversation in game form will furnish her with abundant material upon which to base the exercises.

As has been said, the first three grades present a problem calling for the keenest sympathy and skill in handling, but one may safely expect the child to have outgrown much of his sensitiveness by the end of the third year. Gradually, then, throughout the third grade, the teacher may, at her discretion, widen her field for direct criticism of spoken English. It may not be wise to interrupt continued oral discourse for the sake of correction, but this must necessarily, even in more advanced grades, be a problem for each individual teacher to solve in each particular case.

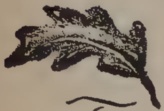
In written work, the correction of errors in spelling, capitalization, and form will occupy much of the time. The result will be that a finished piece of work, such as *My Spring Vacation,* or *Frost,* will represent the labor of ten days or more. As more time each day is spent on oral work than written, this estimate is probably lower than it should be.

Both of these compositions were produced by using the question plan, though in the one entitled *Frost* the questions were more numerous and were kept as an outline, while the one whose subject is *My Spring Vacation* is a simple piece of work, in answer to the two main questions only, "When was spring vacation?" and "How did you spend it?" In writing stories or personal experiences, the questions are so much more obvious that their preservation is unnecessary.

The important feature of this plan is that the child formulates his own questions. These must be such as he would find it necessary to ask in order to secure desired information in case he were entirely ignorant of the subject. The teacher's help will, of course, be needed in training the child to select questions properly. These questions once arranged, the grouping of his "sentence answers" into paragraphs will follow easily.

Frost.

I. What is it?
II. How is it formed?
III. How does it look?
IV. When does it come?
V. Of what use is it?
VI. What does it do?



Written Exercise.

Frost is frozen dew. When the vapor in the air touches something cold, it turns back to water. The drops of water then settle on different objects, such as grass and vines and trees, where they freeze to frost.

The color of frost is white. It looks like flowers and other beautiful things when it is on the window-pane. Frost comes in autumin, winter and spring.

Frost helps the squirrels to get the nuts from the trees. It makes the leaves fall on the flowers so the roots will keep warm when it snows. An early frost makes the corn easier to pick.

The frost paints the window-pane. It decorates the telephone wires. In the spring it sometimes kills the flowers.

Fourth-grade work differs little from third except that the question outline on *Frost* would be changed to statement form, somewhat as follows:

I. What frost is.
II. How it is formed.
III. What it looks like.
IV. Time of coming.
V. Of what use it is.
VI. What it does.

The theme proper also would differ little from the third-grade production, except, perhaps, in the amount of material used in the answers.

Fifth-grade theme work by the question plan might be illustrated by the following partial outline on *Corn:*

Question Outline.

I. What is corn?
II. How does the corn plant look?

Statement Outline.

I. What corn is.
II. Description of the corn plant, etc.

Second Question Outline.

I. What corn is.
II. Description of the corn plant.
    1. How tall is the corn plant?
    2. What kind of stalk has the corn plant?

Second Statement Outline.

I. What corn is.
II. Description of the corn plant.
    1. Height.
    2. Kind of stalk.

Sixth-grade work might differ in the dignity of the words used in the statement outline, such as *I. Definition,* instead of *I. What corn is.*

Seventh and eighth grades should continue theme writing according to outlines thus made and expanded, each further subdivision requiring an additional outline, just as the first sub-questions necessitated the creation of the SECOND QUESTION OUTLINE.

Since, beginning with the fourth grade, a language book is used and a grammar is introduced in the seventh grade, it will be unnecessary to go into further details in regard to language study pursued than is given in the outline following.

The outlines for the study of grammar are based on the principle that the larger divisions of the sentence should be studied first, an analysis of the parts of speech following.

First Grade.

I. SPOKEN ENGLISH.
  A. Spontaneous expression of experiences.
    1. Places seen or visited.
    2. Objects seen.
    3. Things that have happened.
  B. Free expression on subjects suggested by month
    1. September.
      a. Autumn.
      b. Fall flowers.
      c. Farmer's occupation.
      d. Position of sun about September 20.
    2. October.
      a. Birds flying south.
      b. Color of leaves.
      c. First frosts.
      d. Preparation of food by squirrels.
      e. Position of sun in sky, evening and morning.
    3. November.
      a. Early darkness.
      b. Position of sun in sky.
      c. Preparation of man for winter.
      d. Indian summer.
      e. Thanksgiving.

The Story of an Egg.

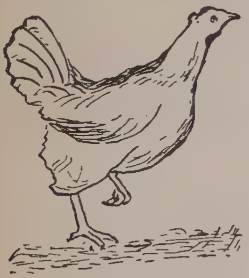
Come and see this egg.

It is so pretty! See how white and smooth it is! This is a hen's egg.

The egg is a little house. A little chicken is asleep in it.

If the mother hen will keep the egg warm for three weeks, the little chicken will begin to peep in it. Then the white shell will break open.

Little chickens are very happy when they come out of the egg. They run about and say "peep, peep."



The mother hen will do all she can to keep the little chickens from harm. When there is danger, she will stand on one foot and cackle, and the little chickens will hide in the grass.

The mother hen will cover the brood at night. She will keep them safe and warm.

WRITTEN WORK—FOURTH GRADE.

4. December.
   a. Winter.
   b. Position of moon in early evening sky.
   c. Stars bright and clear.
   d. Trees leafless.
   e. Christmas.
5. January.
   a. New Year.
   b. Winter.
   c. What farmers bring to town.
   d. What merchants sell.
   e. Sun's position in morning and evening.
6. February.
   a. Lengthening of days.
   b. Winter fuel.
   c. Sun's position in sky.
7. March.
   a. Spring.
   b. Rains.
   c. Sun's position about March 20.
8. April.
   a. Spring.
   b. Planting of grains and flowers.
   c. Return of birds.
   d. Man's preparation for spring.
   e. Sun's position.
   f. Flowers.
9. May.
   a. Trees.
   b. Leaves.
   c. Flowers.
   d. Crops growing.
   e. What the farmers buy in town.
   f. The position of the sun.

C. Reproduction of stories heard and read.
D. Dramatization of stories.
E. Plays and games calling for expression.
   1. Single sentence games.
   2. Correction of vocabulary used in play.
F. Memorizing of poems.
G. Inculcation of principle of interest in telling of stories.

II. WRITTEN ENGLISH.
A. Observance of rules for form.
   1. Left-hand margin.
   2. Title of story without period.
   3. Long paragraph form—Indentation of first line.
   4. Each sentence a paragraph.
B. Capitalization.
   1. Beginning of sentences.
   2. Names of people.
   3. Titles: Mr., Mrs., etc.
C. Punctuation.
   1. Period.
   2. Question mark.
   3. Comma to indicate pause.
D. Material.
   1. Pictures shown.
   2. Flowers brought in.
   3. Subjects discussed orally.
E. Form of written work.
   1. Single sentences.

Second Grade.

I. SPOKEN ENGLISH.
  A. Free expression of experiences.
    1. Material as in first grade.
  B. Free expression on subjects suggested by months, seasons, holidays, etc. (Information to be sought for by pupil at home or anywhere obtainable).
    1. Introduction of discussions about leaves.
    2. Introduction of discussions about seeds.
    3. Flowers studied as to—
      a. Structure (No technical names used)
      b. Color.
      c. Perfume
      d. Habit.
      e. Shapes.
  C. Instruction in grammatical accuracy.
    1. Exercises requiring complete sentence containing correct grammatical forms.
      a. See, saw, seen.
      b. Do, did, done.
      c. Go, went, gone.
      d. Hear, heard.
  D. Enlargement of vocabulary.
  E. Reproduction of stories heard and read.
  F. Dramatization.
II. WRITTEN ENGLISH.
  A. Introduction of question plan.
    1. Subject presented by teacher—e. g., *Rice*.
    2. Questions asked by pupils as if entirely ignorant of subject.
    3. Arrangement of the three or four principal questions (Never more than four in this grade) on board by teacher, with pupils' help in deciding logical order.
    4. Written answers to questions—One sentence of reply to each question.
  B. Capitalization.
    1. Months.
    2. Days of week.
    3. Cities.
    4. Streets.
  C. Punctuation.
    1. Exclamation point.
  D. Material for written expression.
    1. Experiences.
    2. Books of stories, myths, poems, accounts of heroes, etc.
    3. Pictures.
      a. Knowledge of artist gained from teacher's talk.
      b. Description of picture.
    4. Things observed.
      a. Flowers.
      b. Fruits.
      c. Metals.
      d. Grains.
    5. Holidays—New Year, Christmas, etc.

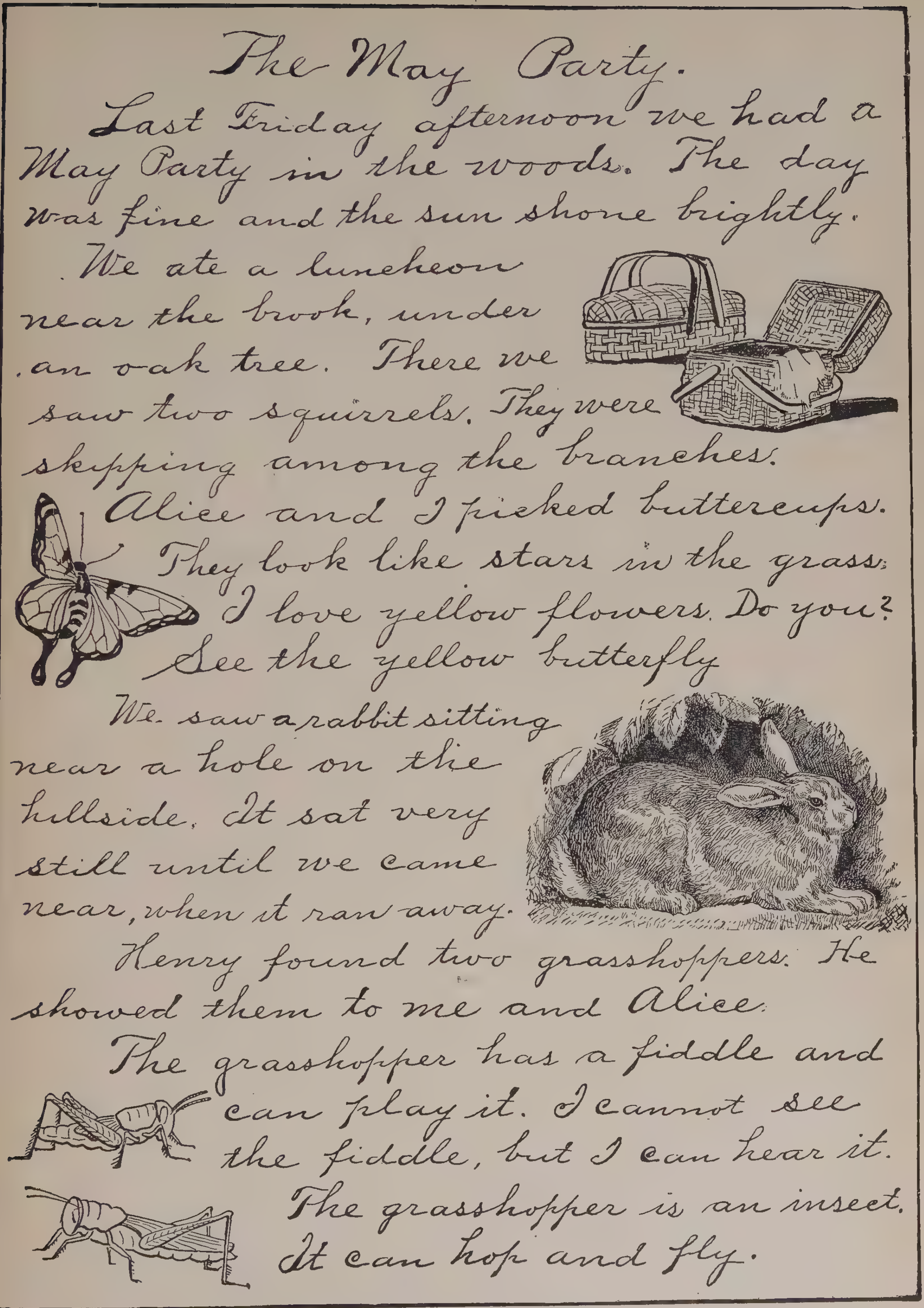
Third Grade.

I. SPOKEN ENGLISH.
  A. Free expression about experiences.
  B. Reproduction of stories heard and read.
  C. Dramatization of stories and lessons.

II. WRITTEN ENGLISH.
  A. Question plan with following additions:
    1. More help from pupils in deciding on logical order of questions.
    2. Use of two or three sentences in reply to one question.
    3. Long paragraph form extended—All answers to one question in one paragraph.
    4. Title page and cover.
  B. Capitalization.
    1. In writing letters.
      a. Heading.
      b. Salutation.
    2. Beginning of line of poetry.
  C. Punctuation.
    1. Apostrophe in contractions.
  D. Abbreviations.
    1. Measures used in arithmetic.
    2. Dr., Cr., Hon., Esq., Mr., etc.
    3. Ia., Ont., Que., Pa., Ill., etc.
  E. Material for written expression.
    1. Experiences.
    2. Letters.
    3. Books containing—
      a. Fables, fairy stories, legends.
      b. Stories of child life in other lands.
      c. Stories of famous men and women.
      d. Stories of adventure.
    4. Pictures.
      a. Knowledge of artist.
        (a) Introduction of library research to limited extent.
      b. Description.
      c. Meaning.
    5. Nature study.
      a. Mounted specimens of flowers studied.
      b. Mounted specimens of leaves studied.
      c. Birds.
      d. Grains.
    6. Physiology subjects.

Fourth Grade.

I. SPOKEN ENGLISH.
  A. Free expression of experiences.
  B. Reproduction of stories heard and read.
  C. Dramatization of stories and lessons.
  D. Conversational exercises.
    1. Between impersonated storekeeper and customer, contractor and laborers, gardener and men wishing to buy plants, etc.
  E. Correction of English used according to discretion of teacher.
II. WRITTEN ENGLISH.
  A. Question plan continued (with following addition):
    1. Change of question outline to statement outline before writing of answers.
  B. Capitalization.
    1. In addressing letters.
  C. Punctuation.
    1. Comma in a series of words.
  D Various abbreviations.



The May Party.

Last Friday afternoon we had a May Party in the woods. The day was fine and the sun shone bightly.

We ate a luncheon near the brook, under an oak tree. There we saw two squirrels. They were skipping among the branches.

Alice and I picked buttercups. They look like stars in the grass. I love yellow flowers. Do you? See the yellow butterfly

We saw a rabbit sitting near a hole on the hillside. It sat very still until we came near, when it ran away.

Henry found two grasshoppers. He showed them to me and Alice.

The grasshopper has a fiddle and can play it. I cannot see the fiddle, but I can hear it.

The grasshopper is an insect. It can hop and fly.

WRITTEN WORK—FIFTH GRADE.

E. Sources of thought for written expression.
   1. Experiences.
   2. Pictures.
   3. Letters.
   4. Books containing—
      a. Fables, fairy stories, and legends.
      b. Stories of child life in other lands.
      c. Stories of famous men and women.
      d. Stories of adventure.
      e. Stories of history.
   5. Nature study.
   6. Physiology.

F. Letter writing.
   1. Review of heading.
   2. Dates.
   3. Salutation.
   4. Body of letter.
   5. Ending.
   6. Signature.
   7. Folding.
   8. Addressing.

III. Introduction of Language Text-Book.

Fifth Grade.

I. Spoken English.
   A. Free expression of experiences.
   B. Reproduction of stories.
   C. Dramatization of stories and lessons.
   D. Correction of English by teacher according to discretion.

II. Written English.
   A. Question plan extended.
      1. First question outline.
      2. First statement outline—Question outline changed to statements.
      3. First sub-question outline—Questions asked under various statements in statement outline.
      4. First sub-statement outline—Sub-questions changed to sub-statements.
   B. Sources of thought for expression.
      1. Experiences.
      2. Books of stories and history.
      3. Nature study.
      4. Physiology.
   C. Letter writing.

III. Use of Language Text-Book.

Sixth Grade.

I. Spoken English.
   A. Recitation.
   B. Reports.
   C. Discussions.
   D. Correction of spoken English at teacher's discretion.

II. Written English.
   A. Practice in making and expanding outlines through one sub-statement outline.
   B. Letters.
   C. Experiences told in story form.

III. Text-Book in Language Completed.

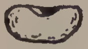
Seventh Grade.

I. Spoken English.
   A. Recitation.
   B. Reports.
   C. Discussions.
   D. Correction of spoken English at teacher's discretion.

II. Written English.
   A. Making and expanding outlines through one sub-statement outline.
   B. Letters.
   C. Experiences told in story form.

III. Text-Book in Grammar Introduced.

Planting A Seed.

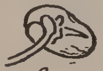
We planted a little seed  in a wooden box.

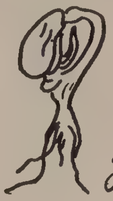
The box contained some moist soil.

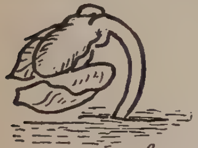
We put the box in a window, where the bright spring sunshine came in.

We gave the little seed some water.

In a few days the seed began to grow.

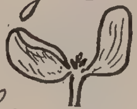
At first it swelled up  and a little sprout appeared at the lower side.

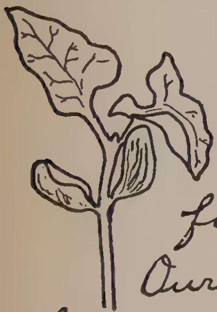
Then a little root  grew down deep in the soil.

Soon a little green stem  grew up into the light.

The stem was curved and somewhat enlarged at the upper end.

We were glad to see the green stem!

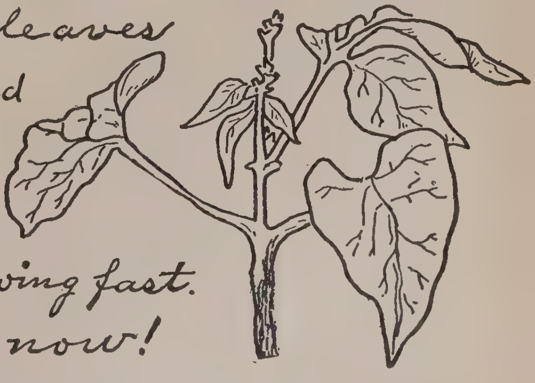
Soon after we saw two  little leaves, and later two more leaves appeared.



The last two leaves were larger and unlike the first leaves.

Our bean plant is growing fast.

See how large it is now!



WRITTEN WORK—SIXTH GRADE.

II. Grammar.

The Sentence.

- I. Classes.
  - A. According to use.
    - 1. Statements (Declarative)—Ex., War is a conflagration.
    - 2. Questions (Interrogative)—Ex., Are you an American?
    - 3. Commands (Imperative)—Ex., Be brave.
    - 4. Exclamations (Exclamatory)—Ex., How fast the time flies!
  - B. According to structure.
    - 1. Simple—Ex., Rome was built on seven hills.
    - 2. Complex—Ex., The plans which you present are very good.
    - 3. Compound—Ex., The fireman raised his ladder and the woman escaped.
- II. Parts.
  - A. Subject.
    - 1. Word.
      - a. Noun—Ex., The house was large.
      - b. Pronoun—Ex., He spoke well.
      - c. Gerund—Ex., Seeing is believing.
    - 2. Phrase.
      - a. Prepositional—Ex., Over the fence is out.
      - b. Infinitive—Ex., To love is human.
    - 3. Clause.
      - a. Noun clause.
        - w. Simple—Ex., That the man escaped is true.
        - x. Direct quotation—Ex., "Never say die," is our motto.
        - y. Indirect statement—Ex., That a man does not live by bread alone is well said.
        - z. Indirect question—Ex., Why he went will never be known.
  - B. Modifiers of subject.
    - 1. Word.
      - a. Adjective—Ex., The beautiful tree was cut down.
      - b. Noun in possessive—Ex., The consul's reception was a brilliant affair.
    - 2. Phrase.
      - a. Prepositional—Ex., A box of oranges has arrived.
      - b. Infinitive—Ex., The way to win is to work.
      - c. Participial—Ex., Having broken his machine, the man stopped.
    - 3. Clause.
      - a. Relative.
        - x. Restrictive—Ex., A filter that is out of order is of no value.
        - y. Descriptive—Ex., The hermit, who preferred his own hut, left our fireside.
        - z. Progressive—Ex., A man was found who understood the business.
      - b. Equivalent of relative clause introduced by a conjunctive adverb—Ex., The place where the tree stood is honored.
  - C. Predicate.
    - 1. Verb.
      - a. Word—Ex., The king entered.
      - b. Phrase—Ex., The day was set.
    - 2. Modifiers of verb.
      - a. Adverb.
        - z. Ideas expressed.
        - 1. Time.
          - a. Word—Ex., Come now.
          - b. Phrase—Ex., In the morning they came.
          - c. Clause—Ex., We started before day dawned.